Railway Age Gazette

Including the Railroad Gazette and The Railway Age

PUBLISHED EVERY FRIDAY BY
THE RAILROAD GAZETTE (INC.), 83 FULTON ST., NEW YORK.

CHICAGO: Plymouth Bldg. CLEVELAND: Williamson Bldg.
LONDON: Queen Anne's Chambers, Westminster.

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Subscription, including regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free:

United States and Mexico.....$5.00 a year.
Canada .....$6.00 a year.
Foreign Edition, London.....£1 12*s.* ($8.00) a year.
Single Copies.....15 cents each.

Shop Edition and the eight M. M. and M. C. B. Convention Daily issues, United States and Mexico, $1.50; Canada, $2.00; Foreign, $3.00.
Entered at the Post Office at New York, N. Y., as mail matter of the second class.

VOL. XLVIII., No. 20. FRIDAY, MAY 20, 1910.

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One finds oneself in a mist of confusion when the test of either equity or economics in railway re-valuation is applied in such a case as the South Station at Boston. Its cost of construction some twelve years ago was $15,015,000; it is capitalized at $500,000 in stock and $14,000,000 of 3½ per cent. bonds under the title Boston Terminal Co., the New York, New Haven & Hartford holding four-fifths of the stock and the Boston & Albany one-fifth. The former corporation pays 75 per cent. of the interest taxes and operating cost; the latter company, 25 per cent. During the last fiscal year those three items aggregated $989,060, while the income from concessions was $316,615, so the net loss to the two corporations was $672,445. Under the valuation of the New Haven made by J. F. Stevens, the terminal probably goes in at an increase to $20,000,000, perhaps more. When it comes to re-valuing upward such a property, there are several viewpoints. The two corporate railway owners may see with approval the added valuation that justifies the "fair return" and a sustained dividend, or even, more remotely, the increase of rates to maintain that dividend, but not with so much approval the higher valuation that challenges increased taxes. As an operating plant, the terminal is a railway necessity, but also means an enormous operating loss—like other big terminals. It is from one view a great asset, from another a great liability. It adds to adjacent realty values, but it cannot logically be tested by them, for its uses are different and its realty is not marketable; nor from the narrow and theoretical view of the stockholders of the two railway companies can a big valuation of a property that subtracts permanently and every year $672,445 from his dividend be regarded as genuine. What is a really just valuation of such a property, considered separately, as it is own technically by a separate corporation, is a problem to perplex wiser heads than those carried by most of the Solons who sit in legislative halls.

The deadlock resulting from the demand by investors for a high income yield on securities, and the refusal of the stronger railway companies to pay high rates of interest for their money, has been apparently broken by the action of some companies in finding in Europe a market for their securities. This solution of the problem might have been suggested by the fact that for the past three months we have been buying more from abroad than Europe has been buying from us; and, notwithstanding the exports of gold to London, the balance of trade—in this case what we owe in excess of what Europe owes us—has been strongly against the United States. The sale abroad of what are believed to aggregate about $124,000,000 bonds within the past three weeks should, as soon as the sales have been finally confirmed, temporarily put the balance of trade in our favor. Of course, when interest payments begin, and, looking much further ahead, the payment of the principal when it falls due, some new way will have to be found either for more borrowing abroad or for paying back our debts with gold or through the natural sale of food products after the movement of crops. The companies that have found it convenient to borrow in Europe are: The Chicago, Milwaukee & St. Paul, which has arranged for the sale of $50,000,000 4 per cent. 15-year debenture bonds in France; the Baltimore & Ohio, which has sold to Speyer & Co. and Kuhn, Loeb & Co. $40,000,000 three-year 4½ per cent. secured notes, which the bankers have placed largely abroad; the St. Louis & San Francisco, which has sold partly in France and partly in Germany $7,500,000 5 per cent. 15 to 20-year bonds; the Missouri, Kansas & Texas, which has sold $10,000,000 4½ per cent. debenture bonds to Speyer & Co., who presumably will place a considerable part of these debentures abroad; the Cleveland, Cincinnati, Chicago & St. Louis, which has sold $10,000,000 4 per cent. debentures in France; and the Seaboard Air Line, which, under the plan of reorganization, sold to a syndicate $18,000,000 adjustment bonds, of which $6,700,000 have been sold abroad. In addition to these sales of American securities in Europe light is thrown on the attitude of European bankers toward American securities by the listing on the Paris Bourse (Parquet) of the second preferred stock of the National Railways of Mexico, of which there is authorized $125,000,000. It will be seen that the tendency is for European investors to take the securities of roads like the Baltimore & Ohio and the St. Paul with very high credit and with securities of the first class to offer. The St. Louis & San Francisco is an exception, and there are plenty of other exceptions. For instance, $2,500,000 Missouri, Oklahoma & Gulf first mortgage 5 per cent. bonds were recently offered in Paris at a price yielding about 5.4 per cent. Probably one reason why American investors are demanding a higher return on their investment

is because they can get it. There are three classes of bonds and stock which compete now with securities of railways for capital that a few years ago were, relatively, little dealt in. These are: industrial bonds, public service corporation and street railway bonds and stocks and power company and hydro-electric bonds and stocks. The securities of these corporations have come before the investor in about the chronological order indicated. All of these enterprises are willing to pay a higher interest rate than are the stronger railways. Moreover, the ones that are successful can well afford to pay this rate.

EFFICIENCY IN RAILWAY SUPPLY DEPARTMENTS.

The seventh annual meeting of the Railway Storekeepers' Association, which was held at St. Louis this week, brings to mind the growing importance of that branch of the railway service known as the "Storehouse" or "Supply" department. It is gradually becoming better understood that the providing and distributing of the raw material from which transportation is manufactured is a factor of railway operation which is worthy of careful and scientific study. Considering the magnitude of the interests involved and the opportunities presented for large economies by concentrating, in competent hands, the authority and responsibility for properly conserving the enormous quantities of material which are called for in the daily operations of a large railway, it seems strange, at the first glance, that those interests should have been comparatively neglected for so long a time.

On the other hand, it must be remembered that a railway is primarily designed for the transportation of people and commodities, and the essence of its being is the movement of trains. Hence the interest and attention of managing officials is focused in the first instance upon the operating department, and from the beginning men have been specially selected and carefully trained for that branch of the work. The trains once in motion, the procuring of their lading becomes the prime necessity and the traffic department the center of managerial activity. The engineering, mechanical and maintenance of way departments, each in turn, play their part and have been recognized as requiring specially trained talent for their proper organization. But the storehouse, which is really the commissary and the magazine of the railway, has been so far removed from the "firing line" that it has, until recently, been almost overlooked and has generally failed to receive the attention and study to which it is really entitled.

It is only within the last twelve or fifteen years that the attention of the managing officials has been turned seriously in that direction, and while the progress and improvement in the methods of supervising the vast stocks of materials, which railways necessarily carry, has been quite marked, it must be admitted that, with some few notable exceptions, the recognition which has been accorded to the storehouse department has been somewhat less than is its due, and the full realization of its ultimate value as a factor in railway economics has not yet been universally reached.

The work of the Railway Storekeepers' Association is bringing this important branch of the service more prominently before the eyes of the railway managers, and the need for carefully trained men in positions of responsibility and for a higher grade of intelligence in the rank and file of the department, is making itself felt. In a sense, the movement is still in its infancy, but the advantages to be derived from the careful application of scientific principles to the control and handling of supplies, by men who are properly qualified by special training for the work, are becoming so manifest as to demand and receive greater consideration.

Perhaps the most important work which has yet been undertaken by the association is that covered by the report of the committee on the "Classification of Material." It marks the first attempt toward securing uniformity in the methods of accounting for the material in charge of the department, and to some extent emphasizes the desirability of placing all the material belonging to the railway, which is not in actual use, under the sole direction and control of the general storekeeper. In a general way, this classification is based upon the uniform method prescribed by the Interstate Commerce Commission for the operating accounts of the railways, so that it will fit in well with the general scheme. It has been the endeavor to make it so elastic as to meet the requirements of any railway, large or small, and yet rigid enough to secure the desired uniformity in the accounts, by which alone the operations of one road can be fairly measured by those of another. This question has been the subject of careful study by committees of the association for some three years and the advantages to be derived from its practical application to the work of the department would seem to be so marked that it can hardly fail to attract favorable notice.

THE COMMISSION'S REPORT ON TRANSIT.

We commented briefly last week on the report of the Interstate Commerce Commission "In the Matter of the Substitution of Tonnage at Transit Points." The report, which was prepared by Commissioner Cockrell, is in the main a very fair and able document and shows that while the commission is determined to stop impairment of the integrity of the legal rates through abuse of the transit privilege, it is also earnestly desirous to do this, if possible, in a way that will not cause any unnecessary business disturbance and losses.

In one respect the report is confusing and perhaps even inconsistent. The commission seems to recognize the commercial necessity for the mixing of different varieties of the same commodity, such as varieties of wheat to make a uniform high grade of flour, and even of different commodities, such as different grains to make mixed feeds, and even upholds the legitimacy of the mixed carloads of grain moving out of New England points on transit billings. On the other hand, it asserts that the hearing has failed to show that its ruling 76-A, in which it condemns the substitution of a commodity originating in one territory for the same or like commodity moving into a transit point from another territory, was too strict, and says that it has been shown "that transit rules and regulations and railway billings which do not distinguish between such commodities as hard wheat and soft wheat, or as yellow corn and white corn," etc., "leave wide open the opportunity for practices which defeat rates, violate the act, and injure honest shippers." Perhaps, however, the inconsistency is more apparent than real. What it probably means, for example, is that the complete substitution of a carload of soft wheat originating in Illinois for a carload of hard wheat originating at Omaha and destined to Cincinnati on a through rate would be illegal, because such substitution would impair the integrity of the through rate, while mixture of the two grains for milling purposes and the subsequent forwarding of the resulting flour on proportionate parts of the through billings, as it would not impair the integrity of the through rates, would be legal. If this be its position it seems reasonable and proper.

Other parts of the report are not open to similar possible misapprehension. The substitution of one commodity for another, as oats for wheat, is emphatically and unanswerably condemned. The same is true of its comments on the practice of putting a raw material through a milling process whereby, as in the case of wheat, the tonnage is reduced from 1½ to 3 per cent., and whereby, as in the case of lumber, it is reduced not less than 50 per cent., and then filling out the tonnage with commodities shipped in on non-transit billings or bought locally. The lumber manufacturers enjoying the transit privilege contend that this practice gives them no unfair advantage over a competitor located at the point of origin of the raw material; but it does give them a very

marked advantage over the manufacturer who ships his raw material to a point where it is to be manufactured and the finished product is to be marketed. The true principle of transit is that if a commodity is put through a manufacturing process at the transit point and its tonnage is thereby reduced 3, or 10, or 50 per cent., there should be shipped out on the transit billings 3, or 10, or 50 per cent. less tonnage than was shipped in. Otherwise the integrity of the rate is destroyed, the shipper forwarding on his billing tonnage on which he actually pays no rate at all.

The commission severely and justly criticizes the railways for recklessly and indiscriminately extending the transit privilege for merely competitive purposes. The effect has been greatly and needlessly to reduce railway earnings, and in many cases unfairly to injure shippers competing with those having the transit privilege and even in some cases to injure the shippers having the privilege.

The commission's original ruling, the disgraceful conditions disclosed by its investigation and its report have put squarely on the carriers the responsibility and duty of promptly and effectively policing the transit privilege, so as to reduce to the minimum the possibility of its use as a device for rebating, and on the shippers the responsibility and duty of complying promptly and in good faith with all reasonable regulations for this purpose. It has practically given immunity for past offenses, but at the same time indicates that it will proceed vigorously against them in future. If there is any criticism to be offered of the commission's course in this matter, it is that it has acted too leniently. The full and fair warning that it now has given should be heeded. The solution of the problem of putting transit on a proper basis may be difficult, but it can be solved if those concerned will set about the matter, not with the aim, as in the past, of seeing how closely they can run to the law without colliding with it, but with the purpose of keeping always well within its limits. If as much ingenuity is exercised in the future to devise means of complying with the law as has been used in the past in devising means to evade it, transit will speedily be put on a fair, legal and tolerably satisfactory basis.

A NEW PRINCIPLE FOR FIXING THE WAGES OF RAILWAY EMPLOYEES.

Perhaps the most important development in the railway labor situation since early in the year the consideration of a readjustment of the various wage scales was begun is the decision rendered by the federal board of arbitration at Chicago regarding the wages to be paid by the railways to members of the Switchmen's Union of North America. This decision was of importance partly because, being the first rendered by an arbitration board under the Erdman act in a controversy directly and indirectly involving the question of the wages to be paid to a very large number of railway employees, it established a precedent for similar future boards. And being a precedent, it derived additional importance from one principle which the majority of the board laid down as fundamental in the settlement of differences over wages between railways and their employees. The principle in question as enunciated is of such significance that it is surprising how little comment it has evoked.

The grounds on which the switchmen sought increases in wages were that the cost of living had increased since the last advance in their pay in 1906; that railway employees were handling an increased tonnage of traffic per man; that wages in other crafts had risen; and that the earnings of the railways were such as to enable them to pay higher wages. The representatives of the railways controverted more or less all these propositions, but mainly the last one. It was pointed out by them that the country was just emerging from a period of business depression in which the roads had been among the principal sufferers; that the cost of all kinds of railway equipment and supplies was increasing; and that the financial future was uncertain; and, therefore, it was argued, the roads could not afford to increase wages. This was particularly true of three of the railways involved, the Chicago Terminal Transfer, the Chicago Great Western and the Pere Marquette, which had not earned their fixed charges for three years. It was contended that to increase wages would be practically to confiscate the properties of these roads. The majority of the board, in awarding an increase of wages, said that it would be unfair to consider solely the effect of its award on either the most or the least prosperous roads, and then added:

"We are of opinion, however, that the interests of those holding the stocks and securities of all these companies requires the continued operation of these lines. This being so, we are also of opinion that these companies must be regarded as able to pay operating costs, including, of course, just and reasonable wages to the class of employees parties to this arbitration."

What was meant by the foregoing, as was made clear by S. S. Gregory, chairman and umpire of the board, in rendering the majority opinion, was that it is cheaper for a road to go on operating even if it does not earn its fixed charges than to quit operating altogether, because if it goes on operating the loss to its security holders is only partial, while if it suspends operation the property at once becomes practically a dead loss. "And, therefore," said Mr. Gregory, "it has seemed to the majority of the board that in the case of every one of these roads, entirely irrespective of the question whether they were able by operation to pay fixed charges or not, the roads should be operated, and as incident to that, upon the same theory upon which a court will order the purchase of necessary supplies at reasonable and proper prices, there must be payment of reasonable and proper wages."

This reasoning seems to ignore or repudiate the right of those who invest their money in railways to receive a "just and reasonable" return from it; the employee must get his maximum "just and reasonable" wage even if the owners of the property are thereby reduced to less than nothing. A good rule works both ways. The principle enunciated is in substance that the amount of money a road is making is no criterion of what wages it should pay; that the true criteria are the cost of living and the amount of the wages being paid in other industries; and that a railway must pay just and reasonable wages even if the effect be to so increase its operating expenses as to keep it in a state of chronic bankruptcy. But if employees should not share in a road's adversity, on the same principle they should not share in its prosperity. It follows that they have no right, if and when they are already receiving wages that are reasonable, measured by the cost of living and the amounts paid in other businesses, to demand higher wages on the ground that the profits of the railways have increased. On this theory they have no interest whatever in the well-being of their employers.

But it is as impossible to thus divorce the interest of railway labor from the interest of the railway as it is to divorce the interest of the public from that of the railway. The principle laid down is an economic half-truth. A road can better afford to operate temporarily for earnings that are less than its operating expenses, than to stop operation entirely. Perhaps it could better afford to operate permanently for less than interest on its actual cash investment than to quit operating entirely. But that it could not operate permanently with its operating expenses exceeding its earnings is self-evident. And that it would be advantageous to its employees as a whole for it to increase wages at a time when it was not earning interest on its investment is also very questionable. For, while each employee that it kept on its payrolls would get more money, the road, other things remaining equal, would be forced to reduce the number of men that it employed. The public also is entitled to some consideration from an arbitration board organized under the law and acting for the public, even if the owners of the railways are not. Now, it is obvious that an increase in wages which is made in disregard of the earn-

ing capacity of the railways and which, therefore, other things remaining equal, is sure to force the roads, or at least some of them, to reduce the number of their employees or to curtail their expenditures for maintenance, equipment, etc., is apt to injure the public by impairing the transportation service rendered to it.

The arbitration board in passing on the wage question in this case was acting for the federal government. By regulation of rates through the Interstate Commerce Commission the government, to a large extent, may and does control the amount that railways may earn. Acting for the government the arbitration board said to the railways, in effect: "We hold that you should increase the wages you pay regardless of what rates you can charge and what profits you can earn." Suppose, now, that the government through the Interstate Commerce Commission should say to the railways, "We will regulate your rates regardless of what wages you have to pay." It is only fair to assume that the authorities that regulate rates will see how unjust, and how foolish from the standpoint of public expediency it would be for the government to adopt the policy of thus withholding from its left hand information as to what its right hand was doing. They must see that if a board of arbitration, in determining what wages a railway ought to pay, cannot or will not take into consideration its ability to pay them, then the power that regulates its rates must take this into consideration in determining the rates which it is reasonable for the railway to charge. Otherwise the roads are in danger of being ground exceeding fine between the upper millstone of government regulation of rates and the nether millstone of government regulation of wages. Shippers who oppose increases in rates to recompense the railways for advances in wages seem to proceed on the theory that all raises of wages should come out of the pockets of the owners of the roads, since the wages are paid to men who are employed by the owners of the railways and not to men who are employed by the shippers. But in the long run wages must be paid out of earnings; and the only sources from which earnings are derived are the charges paid to the railways by shippers and travelers; and if the government says that the railways must increase their wages it must allow the roads to get the wherewithal to pay them from the only sources from which it can be obtained.

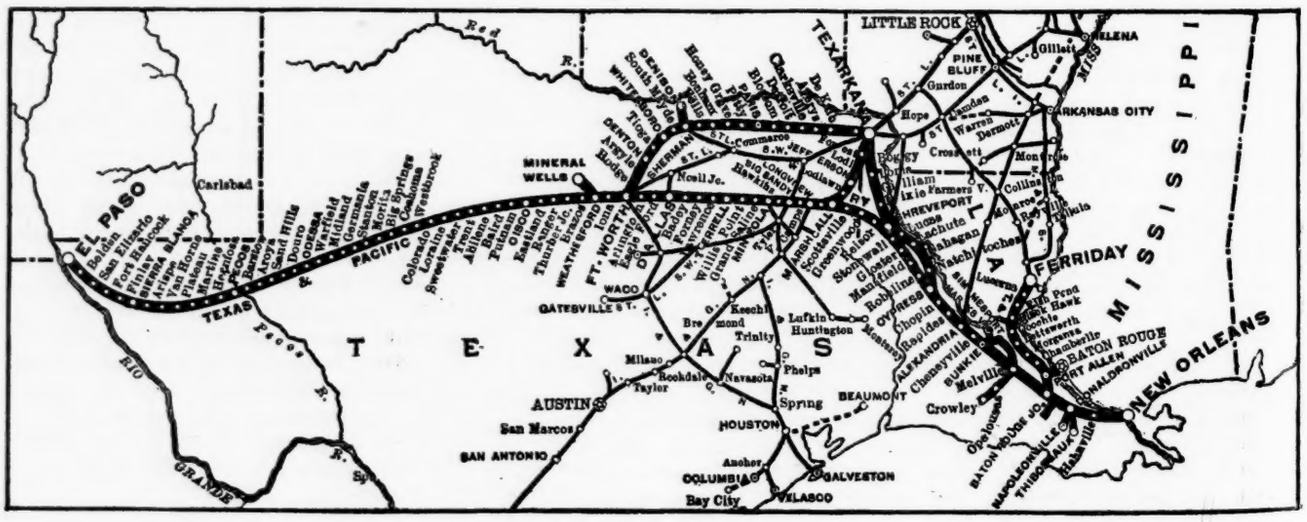
TEXAS & PACIFIC.

The Texas & Pacific is operated in three divisions—the Louisiana division, which is the main line from New Orleans, La., to Shreveport, the Eastern division from Shreveport to Fort Worth, Texas, and the Rio Grande division, from Fort Worth to El Paso, 620 miles. This mileage operated as the Rio Grande division, stretches across what was originally desert, yielding almost no local traffic. Exclusive of the mileage between Sierra Blanca, Tex., and El Paso, the company operates 1,792 miles, of which 1,371 miles is main line and 421 miles is branch line mileage.

In 1892 the Eastern division earned gross $3,000,000, the Louisiana division $2,300,000, and the Rio Grande division $1,700,000; in 1909 the Eastern division earned $5,200,000, the Louisiana division $4,500,000, and the Rio Grande division $5,250,000. It will be seen, therefore, that in 17 years the earnings of the Eastern division and the Louisiana division have not quite doubled, while the earnings from the Rio Grande division have increased between three and four times, and it is through the development of the country tributary to the Rio Grande division that the Texas & Pacific has the best chance to better its earnings in the future. It is estimated that the population of Texas is being increased by immigration at the rate of about 75,000 a year. The greater portion of these settlers are locating in the newer sections of the state—the Pan-Handle section, the middle west section and the extreme southern section, where farming is spreading into country hitherto used only for stock raising. This increase in population is especially rapid along the line of the Texas & Pacific between Abilene and Toyah. The growth is not confined to the country immediately along the line of the road, but extends to counties and towns 40 and 50 miles away from the railway.

The year 1909 was not a good one for agricultural products. The cotton crop was particularly poor and the movement of grain and other agricultural products was also comparatively light; nevertheless, the Texas & Pacific had gross earnings from freight amounting to $10,200,000 in 1909, as compared with $9,400,000 in 1908. Total earnings from transportation amounted to $14,960,000 in 1909, as against $13,900,000 in 1908 and $16,700,000 in the highly prosperous 1907 year. This good showing is due to the more prosperous general business conditions and to the development of Texas that is rapidly taking place. The increase in earnings from the Rio Grande division amounted to $645,000, or more than half the total increase in earnings, and the increase in net revenue on the Rio Grande division was $406,000, comparing with a total increase in net revenue for all three divisions of $424,000.

Freight statistics show that on the entire line 5,400,000 tons of freight were carried in 1909, an increase over 1908 of 490,000 tons. Of this total increase in freight tonnage, 382,000 tons came from local freight. Manufactures, merchandise, etc., made up 22 per cent. of the total tonnage carried in 1909 and furnished 1,200,000 tons of freight. This compares with about 1,000,000 tons furnished by manufactures and merchandise in 1908. Products of forests furnished 23 per cent. of the



Texas & Pacific.

total tonnage in 1909 and 22 per cent. in 1908; products of mines furnished 26 per cent. in 1909 and 23 per cent. in 1908. Cotton furnished 140,000 tons of freight in 1909 and 210,000 tons in 1908. Thus, while the tonnage of cotton was only 2.6 per cent. of the total tonnage in 1909 and 4.2 per cent. in 1908, the revenue from the carriage of cotton was 5.86 per cent. of the total freight revenue in 1909 and 9.03 per cent. in 1908. Of the total 559,000 bales transported in 1909 Texas contributed 358,000 and Louisiana 201,000 bales. There has been a heavy decrease in the production of cotton in Louisiana due to the boll weevil, and the acreage of land planted with cotton has, in the past few years, been decreasing because of the fear of planters of this cotton pest. This decrease in cotton acreage in Louisiana, it is thought, will be largely compensated for by an increase in the acreage of sugar and cane. The bad cotton crop in Texas last year was due largely to the prolonged drought.

The average revenue trainload was 222 tons last year, comparing with 221 tons the year before. The average revenue per ton per mile was the same in 1909 as in 1908, namely, 1.03 cents. The average revenue per passenger per mile also remained the same in 1909 as in 1908 and amounted to 2.43 cents.

Transportation expenses amounted to a total of $10,900,000 in 1909 and to $10,300,000 in 1908. This comparatively slight increase in expenses in connection with the considerable increase in gross earnings reduced the operating ratio from 73.93 to 72.91. The Texas & Pacific is spending considerably more on maintenance of way and structures. In 1907 $1,700,000 was spent; in 1908 $1,800,000, and in 1909 $1,900,000. Transportation expenses in 1907 amounted to $7,000,000; in 1908 to $5,700,000, and in 1909 to $5,900,000. After the payment of taxes, interest on bonds, $360,000 to improvement account and $660,000 to equipment account, the company had a surplus for the year of $688,000. This compares with payments of $305,000 to improvement account, $601,000 to equipment account in 1908, in which year $863,664 was paid in dividends on the income bonds, so that the company showed a deficit of $598,650 for that year.

From a financial point of view, the chief difficulty that the Texas & Pacific has had has been the impracticability of funding or paying off a rather large floating debt. The balance sheet of December 31, 1909, shows bills payable of $5,660,000. This is less by about $200,000 than the bills payable at the end of 1908. Besides this payment on account of floating debt, the company has increased the stock of cash on hand from $297,000 in the treasury at the end of 1908 to $860,000 on hand at the end of 1909. A floating debt the size of that shown by the Texas & Pacific would be dangerous under ordinary circumstances, but the Texas & Pacific is under the particular protection, probably, of George Gould, its president, so that the Gould interests would be willing to lend the road what money it needs until such time as it can fund this debt. It is certain from the revenue account that the road is not paying an excessive interest on its debt. The total interest and discount, exclusive of interest on bonds, amounted last year to $324,000, and if all of this is interest on the floating debt, the company is only paying a little over 5½ per cent. for its money.

The outlook for next year is particularly good. Nearly all the forces that were at work in 1909 to better the earnings of the property are still active, and, in addition, there is a prospect of a very much better cotton crop, with consequent larger tonnage from this source and increased prosperity of cotton planters.

The frankness and completeness of the annual report of the Texas & Pacific is well worthy of imitation by other roads. There are few, if any, annual reports published that go into fuller details or give more frankly the figures that are essential to one who wishes to make a true estimate of the condition and earning power of the property. For instance, an unusual number of figures are reduced to a per mile basis, the age of various classes of equipment is given, and unit costs of transportation and maintenance are worked out. The following table shows the results of operation in 1909 compared with 1908:

	1909.	1908.
Mileage operated	1,885	1,885
Freight revenue	$10,220,148	$9,401,569
Passenger revenue	3,762,061	3,528,484
Total operating revenue	14,960,653	13,917,315
Maintenance of way	1,943,376	1,800,898
Maintenance of equipment	2,405,788	2,171,407
Traffic	215,793	190,207
Transportation	5,938,115	5,735,105
Total operating expenses	10,908,319	10,288,808
Taxes	535,576	558,429
Net operating income	3,516,758	3,070,078
Gross corporate income	3,573,993	3,197,896
Net corporate income	1,708,952	1,170,602
Improvement account	360,175	304,803
Equipment account	660,414	600,785
Dividend on income bonds	.....	863,664
Surplus	688,363	*598,650

*Deficit.

NEW BOOKS.

Designing and Detailing of Simple Steel Structures. By Clyde T. Morris, C.E., Professor of Structural Engineering, Ohio State University. The Engineering News Publishing Co., New York. Cloth; 6 in. x 9 in.; 201 pages; illustrated. Price, $2.25.

This book does not deal with stresses in structures, the assumption being made that the student is familiar with such work. It takes up the little things glossed over in nearly all books dealing with roof and bridge design, but which in practical works are brought most sharply to the attention of the young designer. The author could not have written such a thoroughly good work without considerable experience at the designing board. It is full of practical information, and a careful reading will enable a student soon to feel at home in a drafting office.

Tables and Diagrams for Obtaining the Resisting Moments of Eccentric Riveted Connections. By E. A. Rexford. The Engineering News Publishing Co., New York. Cloth; 8 in. x 10 in.; 32 pages. Price, $1.00.

Many partial failures of steel structural work occur through faulty design of riveted connections transmitting eccentric stresses. This is due primarily to one or both of two causes, namely: (1) to close adherence to office-developed standards, and (2) lack of time in which to investigate the matter fully. In this little book the author gives diagrams for graphical calculation to lessen the clerical work involved. The stress per rivet is plotted as an ordinate and that due to bending stress as an abscissa, the values in shear being plotted as curves with a common center. The distance from the origin of coordinates to the intersection of any ordinate and abscissa represents the resultant shear. There are 29 plates, each containing four diagrams, with a blank page for notes facing each plate. Directions for use are fully given, with examples.

Civil Engineering as Applied in Construction. By Leveson Francis Vernon-Harcourt. Second edition, revised by Henry Fidler. Published by Longmans. Green & Co., New York and London. Cloth; 6 in. x 9 in.; 625 pages, 368 figures in text. Price, $5.00.

This book is an encyclopedic compilation for the benfit of students. It is intended principally for British students. Part I, in 6 chapters, contains 81 pages dealing with materials, preliminary operations, foundations and roads. Part II, in 12 chapters, has 202 pages dealing with railway, tunnel and bridge engineering. Part III, in 7 chapters, fills 94 pages dealing with river and canal engineering and irrigation works. Part IV, in 5 chapters, has 60 pages, and deals with dock works and maritime engineering. Part V, in 4 chapters, and having 44 pages, deals with sanitary engineering. The index is full and complete. Nothing is attempted in the way of mathematical discussion, but in a few places simple explanations are given of mechanical principles involved, in order to render descriptions of certain work intelligible. Foot notes and references to original sources abound. References are made to American and foreign publications and society proceedings, giving the best examples of current civil engineering practice.

Letters to the Editor.

EFFICIENCY AND UNIONISM.

To the Editor of the Railway Age Gazette:

In your issue of May 6 you publish an article by Harrington Emerson under the title, "The Fundamental Principles of Efficiency," which should be read by every railway officer in America, with special reference to the exhibit of roads "A, B, C, D and E," of which Mr. Emerson claims definite knowledge. The perusal of the article is especially recommended to the various board of directors, also the gentlemen in Wall Street who are primarily responsible for labor conditions as they exist on American railways.

Mr. Emerson makes a masterly statement of a plain business matter. His point is that to bring about an improvement it is simply necessary to introduce business methods into a business proposition. It sounds simple—inaugurate some system, piece work or bonus, that will automatically give the workman increased compensation for increased efficiency. He is right; but, upon considering the matter carefully, it will strike the mechanical officer that in carrying out this apparently simple program he will encounter some difficulties, and to understand these difficulties it would be well to make a brief analysis of the causes leading up to the present-day condition of inefficiency.

Twenty years ago the shop mechanic knew his business and took pride in doing a job quickly and well. The new man who came into the shop had to be able to hold up his end among his fellows. If he proved to be a botch workman his associates made life so unpleasant that his stay was usually short. This condition has been exactly reversed. Unionism has developed and spread. The new man is now quickly informed what pace will be allowed, and if he exceeds this pace his "brothers" will make life too unpleasant to be endured. The ambition of the present-day mechanic, imbued with union principles, is to get all the money possible for as little work of as poor a quality as possible.

Labor organizations are strong, or at least are so considered, and they are pledged to secure the abolition of piecework of any other system that puts the workman in a position where he must stand on his own merits. Therefore to inaugurate any system that will bring about increased efficiency the railway which contemplates the innovation must first enter upon an expensive fight with organized labor—and here is where the operating officer strikes his snag. If he gets into trouble with organized labor he gets into trouble with the powers that be, for peace must be preserved at any price.

Mr. Emerson cites the case of a railway, name not given, which made a remarkable improvement during the years 1905 to 1909, inclusive, by establishing a system of rewards for individual efforts. It is not hard to guess what road is referred to. A complete statement of the case would include the information that conditions on this railway were extraordinarily bad prior to and during 1905, and that as a preliminary step toward establishing said system the road in question had cleared the way by elimination of labor organizations from the problem through a long and expensive strike.

Mr. Emerson believes that motive power east of the Rocky Mountains should be maintained for five cents per locomotive-mile, and I believe he is right. I have personal knowledge that in the fiscal year 1899 the cost of locomotive repairs on a mountain division of a certain transcontinental railway was a small fraction under five cents per locomotive-mile. For the fiscal year 1909 the cost was 14 cents per mile. Practically the same class of power was in service and it was kept in equally good condition during both years. In 1899 this railway had no labor schedules, nor did it recognize any labor organization. By 1909 the labor organizations practically controlled the shop output. In the meantime money had been spent practically without limit to improve conditions. Double track had been constructed at congested points, side tracks lengthened, grades reduced, water service improved, antiquated shops and tools replaced by modern facilities, all conditions tending toward cheaper and better service improved. During the ten years, pay of shop men had been increased and cost of material had risen, which would offset some of the improvements and account possibly for a fraction of the increase in expenses, but the major portion of the increase was due to unionism, and nothing else.

This particular railway has kept "peace" with labor organizations and is paying for it. Considering locomotive mileage, the increase in expenses would amount to, roughly, $250,000 per year—this for one item on one division. Now, take into account the general decrease in efficiency in all departments of the entire road and estimate to suit yourself the amount railways are paying for allowing labor organizations to set the pace.

In our daily papers and our magazines we are constantly receiving every conceivable sort of an explanation for increased cost of living—a deep question apparently and one upon which the writer has no opinion to advance. But he would respectfully submit this query: How much of the increased cost of the daily necessities of life is traceable to the general letting down in efficiency of our modern industrial machine due to the development of unionism during the last dozen years?

MASTER MECHANIC.

COMPARATIVE PAY OF TRAINMASTERS AND TRAINMEN.

To the Editor of the Railway Age Gazette:

I value your paper very highly, but unfortunately my salary makes it hard for me to meet my living expenses and keep up the life insurance necessary for the protection of my family. Therefore, I will pay my subscription by July 1, if you will wait. It is a curious fact that the salaries of most railway officers have not increased, as have the wages of members of organized labor. I believe most trainmasters, superintendents and assistants of like character work for less, if paid by "the piece," than do the enginemen and conductors working under them. Such is my case.

I often wonder whether or not it is policy to be educated and for one to try to improve one's self mentally when the men who are fortunate enough to be on lists as enginemen or conductors can draw more money than their boss.

———,
Trainmaster.

TON-MILE STATISTICS.

New York, May 13, 1910.

To the Editor of the Railway Age Gazette:

In reading the Reports on Statistics prepared for the International Railway Congress at Berne I have come across a reference to the report on statistics made by the committee appointed by the English Board of Trade. It is true that this report was published nearly a year ago, but I have not seen any comments on one of the minority findings, which is of especial interest to American railway men.

I find in this report that the majority of the committee gave a mild approval of statistics based on the ton-mile, while an active minority filed a vigorous dissent. The conclusions of this minority are in number twenty-three. The twenty-third reason for objecting to ton-mile statistics reads as follows:

"23. A large number of leading railway men in the United

States of America consider they are of no practical value."

This statement may, of course, be correct, but I must confess that in a somewhat large acquaintance of leading railway men in the United States of America I cannot remember having heard this adverse opinion expressed.

As the report has been printed in the *Bulletin* of the International Railway Congress it may be as well for the United States delegates to fortify themselves somewhat on this detail. The report does not show that any officers of purely American roads testified on this matter, but Mr. Hays, of the Grand Trunk, testified to the value of ton-mile statistics, and I think there is no doubt that almost all the railway men on this continent, both north and south of the Canadian line, agree with him.

ARTHUR HALE.

[The twenty-third reason is an indefinite statement. The basis for it is not given in the committee's 438 pages of "Minutes of Evidence," but it is known that members of the committee obtained by correspondence the opinions of railway officers in the United States, and that they were nearly unanimous in the opinion that ton and passenger mile statistics are valuable. Nevertheless the minority, above referred to, did not intend to mislead anyone. Many officers assigned "practical value" solely to the daily inexact returns of tons hauled one mile, available as immediate lessons to the operating officers.—EDITOR.]

SPEED LIMITS OF MALLET COMPOUNDS.

Topeka, Kan., April 27, 1910.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Referring to the editorial on "The Speed Limits of Mallet Compound Locomotives" in your issue of April 1, I infer from it that there is considerable objection to the method of baffling steam in that type of engine. Soon after the Mallet passenger engine went into regular service in the mountains on our lines in California I made tests to get some preliminary data regarding its performance. It appeared to me, when first studying this engine, that there would be considerable frictional resistance in the steam passing from the high to the low pressure cylinders, but the indicator cards do not show that such is the case. The back pressure on the high pressure piston, as shown by indicator cards, is only 7 lbs. greater than the initial pressure, or pressure of admission of the low pressure cylinder; that is, the frictional resistance of the steam in its passage through the low pressure superheater, dry pipe connections and valves is only 7 lbs. In the Jacobs superheaters the baffling plates are used in order that there may be an impingment of the steam directly against the tubes in the superheater. An inspection of the detail construction shows that the passage way through the superheater is ample, so that little frictional resistance is offered by the superheater itself. The steam pipe connections are, I believe, too small. The larger reserve volume offered by the low pressure superheater is of great value in maintaining a good admission line to the low pressure cylinders.

In connection with the performance of the Mallet I notice also that a speed limit seems to be placed on this engine, and I am informed by Mr. Vauclain, superintendent of the Baldwin Locomotive Works, that our 1,300 class passenger Mallet engines were designed for a maximum speed of 36 miles per hour. These engines unfortunately, on account of changes in schedule, were placed in service in a territory where there are about 80 miles of 2.2 per cent. rolling grade and 60 miles of 0.6 per cent. to 1 per cent. grade. In order to make schedule time over this latter territory it is necessary that the engines make an average of 45 miles per hour, including stops. Very often during the tests the engines made 60 miles per hour and they have even made up time over that portion of the territory where the grades are light.

H. B. MCFARLAND,
Engineer of Tests, Atchison, Topeka & Santa Fe.

Contributed Papers.

EQUIPMENT DEPRECIATION AND REPLACEMENT.

BY WILLIAM MAHL,
Vice-President, Union Pacific and Southern Pacific Systems.

The writer has received a number of requests for a statement showing the "Per Cent. of Cost of Equipment Vacated to Total Original Cost" for each of the companies for which the average was published in statement No. 1 in a previous article. [*Railway Age Gazette*, March 4, 1910.] In response to these requests the accompanying statement is now submitted. As the "per cent." is the important unit the amount of money involved is omitted.

The large per cent. for the Nevada & California and the South Pacific Coast is caused by the disposal of their narrow gage equipment. Each of the companies disposed of its equipment as it was destroyed, worn out, or sold when its further use became unprofitable and dealt with it in its operating expenses as they did with any other detail of its transportation plant which required replacement in the course of the maintenance of the property.

It will be seen from the statement that the "per cents." differ widely as to years and as to companies for the same equipment. The complications which would result from the use of a fixed per cent. for renewal or depreciation and the adjustments which would constantly become necessary to bring the charges into accord with the actual facts and the actual expenditures are apparent.

The classifications of the Interstate Commerce Commission provide that there should be charged in respect to equipment condemned, destroyed, or sold:

To "operating expenses"—(*Renewals*) the original cost (estimated if not known), record value, or purchase price of all equipment condemned, destroyed, or sold, less (*a*) the amount previously charged (since July 1, 1907) for depreciation up to date of retirement and (*b*) scrap value of salvage or the amount received from sale of equipment retired; and to "Profit and Loss" the depreciation which had accrued prior to July 1, 1907, so that in effect the year's charges bear the entire cost of the equipment vacated less the salvage value.

Also another charge to "operating expenses"—(*Depreciation*) for a monthly charge representing depreciation on the cost of the equipment in service.

The Southern Pacific Company, in the absence of any facts about "Depreciation" (other than the replacement of equipment as it was vacated), thought it best to continue its past practice, and charge to the operating expenses, as "Renewals" only, the cost of all equipment vacated (less salvage value) had made no charge to "Depreciation" or to "Profit and Loss."

As an illustration of the practical working out of the two methods, the following statement prepared from information given in the published annual reports of the railways for the year ended June 30, 1909, may be of interest. The amounts charged to "Renewals" and to "Depreciation" of freight cars only have been selected, as a greater number of freight cars are annually vacated, destroyed, or condemned than of other equipment, and, therefore, the renewals may be assumed to be about the normal annual depreciation.

In the absence of more accurate information, the average number of cars in service during the year was assumed to be one-half of the aggregate number of cars on hand at the beginning and at the close of the year.

As the names of the companies are not essential for this illustration, numbers have been substituted for them. With the exception of companies Nos. 3, 7 and 8, the Profit and Loss accounts of the companies did not disclose any charges for "Depreciation" accruing prior to July 1, 1907, and, therefore, it was assumed that none were made.

Those familiar with the physical operation of a railway know that the efforts of the management are constantly directed towards the improvement of the physical character of the property and of its efficiency to the end that its service to the public may be still further increased thereby.

The staff to whom is committed the maintenance of its equipment is alert in adopting any design or device by which the durability and service of the equipment is augmented. It is a well known fact that, as locomotives, cars or other equipment are taken into the shops for repairs or renewals, details of construction which have proven themselves weak are replaced with details of greater strength either in design or by the substitution of material of greater durability. It is the exception when a locomotive, car or other equipment leaves the shops after a general overhauling that it has not been improved in design, durability and service.

In thus making repairs and renewals to its equipment, the management has fully discharged the obligation which rests upon it to keep unimpaired the capital account of the property entrusted to it by the owners and the obligation to the public in respect to the cost of operating its railway.

No 1.—Per Cent. of Original Cost of Equipment Vacated to Total Original Cost, Charged to Operating Expenses.

Companies.	Years in operation.	Locomotives 1909.	Locomotives 1908.	Locomotives 1907.	Locomotives Average.	Passenger train cars 1909.	Passenger train cars 1908.	Passenger train cars 1907.	Passenger train cars Average.	Freight train cars. 1909.	Freight train cars. 1908.	Freight train cars. 1907.	Freight train cars. Average.	Work equipment 1909.	Work equipment 1908.	Work equipment 1907.	Work equipment Average.
Central Pacific	40	2.70	0.60	0.86	1.38	1.26	1.07	1.72	1.35	4.59	7.07	4.79	5.47	2.28	0.86	1.08	1.41
Gal., Harrisb'g & San An	32	.34	...	...	.12	.17	.11	.16	.15	3.21	4.07	9.50	5.85	1.51	1.65	4.51	2.59
Houston, E. & W. Texas.	25	...	4.03	...	1.36	...	...	...	...	4.87	3.85	.92	3.16	...	8.94	5.71	4.39
Houston & Shreveport...	25	...*	...*	...*	...*	...*	...*	...*	...*	...	...	...	...	...*	...*	...*	...*
Houston & Tex. Central.	36	13.02	...	2.00	4.99	...	.20	3.24	1.18	9.24	7.50	2.33	6.21	3.89	.84	.24	4.95
Iberia & Vermilion.....	16	...*	...*	...*	...*	...*	...*	...*	...*	...	...	...	...	...*	...*	...*	...*
Louisiana Western	29	...	...	...	...	...	.05	...	.02	1.43	1.34	2.12	1.64	.39	7.07	4.52	3.64
Morgan's La. & Tex. Co..	43	...	...	...	...	...	.69	...	.23	.68	.91	3.35	1.63	.20	3.32	8.63	3.44
Nevada & California....	27	9.01	...	4.47	4.61	...	...	...	...	5.69	11.85	15.95	11.75	...	4.35	...	1.52
New Mexico & Arizona..	27	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...	...	...	...
Oregon & California....	37	4.19	...	1.02	1.73	...	...	.33	.11	9.39	6.70	8.42	8.15	.57	1.11	2.97	1.57
Sonora Railway	26	6.82	...	12.14	6.64	...	...	...	...	7.49	6.19	3.20	5.52	1.23	...	...	.44
Southern Pacific	38	1.26	.47	1.48	1.07	2.41	2.28	2.50	2.39	3.44	3.98	3.70	3.70	1.16	.86	1.62	1.22
South Pacific Coast.....	29	6.44	41.56	31.99	29.94	.02	13.50	5.17	6.38	4.70	11.50	28.83	17.70	15.15	41.92	1.67	20.75
Texas & New Orleans...	33	...	...	...	...	.05	...	.17	.07	.95	1.09	2.78	1.63	1.37	1.92	6.37	3.23

*None owned.

No. 2.—*Average Charge Per Freight Train Car Owned, Per Year.*

Years ended June 30:	Charged to operating expenses—Renewals.	Charged to operating expenses—Depreciation.	Charged to operating expenses—Total.	Charged to profit and loss.
Southern Pacific Co., 1907.	$26.10	.....	$26.10	.....
" " " 1908.	23.39	.....	23.39	.....
" " " 1909.	19.05	.....	19.05	.....
No. 1, 1909.....	4.51	$18.38	22.89	.....
" 2, 1909.....	2.71	13.12	15.83	.....
" 3, 1909.....	.43	6.63	7.06	$7.58*
" 4, 1909.....	1.99	11.59	13.58	.....
" 5, 1909.....	1.93	9.50	11.43	.....
" 6, 1909.....	.06	19.70	19.76	.....
" 7, 1909.....	5.73	13.82	19.55	14.54*
" 8, 1909.....	1.92	2.66	4.58	*20.88†
" 9, 1909.....	24.56	.....	24.56	.....
" 10, 1909.....	1.09	13.94	15.03	.....
" 11, 1909.....	4.76	15.02	19.78	.....
" 12, 1909.....	7.44	17.69	25.13	.....
" 13, 1909.....	.35	24.18	24.56	.....

*The charges to Profit and Loss by these companies did not show separately the amounts charged for account of depreciation for locomotives, passenger train cars, freight train cars, and work equipment. The entire amount was therefore carried against freight train cars, which, of course, is not a proper unit, but it furnishes some information as to the amount taken up in the year's expenses for account of depreciation for all equipment.

† Includes depreciation and other charges.

In conclusion, the hope is again expressed that the Interstate Commerce Commission will amend its "Classification of Operating Expenses" by omitting altogether the provisions for "Depreciation" and amend the provisions for "Renewals" to read "This account includes the current cost for reproducing in kind, or in capacity, all equipment condemned, destroyed or sold, less scrap value of salvage or the amount received from sale."

With this change in the classification and the credit to "Equipment" for the cost of the equipment condemned, destroyed, sold or otherwise disposed of as now provided in the classification of the Interstate Commerce Commission for "Additions and Betterments," the commission, the owners of the property, and the public will have some reliable information of the relation between the cost of the equipment vacated and the amount taken up therefor in the Operating Expenses.

THE AIR BRAKE ASSOCIATION.

The seventeenth annual convention of the Air Brake Association was held at Indianapolis, Ind., commencing May 10. John R. Alexander (Pennsylvania Railroad) presided and 292 members attended. John F. McNamee, editor and manager of the *Brotherhood of Locomotive Firemen and Engineers' Magazine*, in addressing the meeting announced that this Brotherhood had recently established a correspondence school for the instruction of engineers and firemen.

The president in his address said that passenger car brakes are more efficient than those on locomotives and there is opportunity for further improvement in engine brake equipment. The brake companies are constantly making changes in their fixtures, and this might be regarded as objectionable, but it should be remembered that railway conditions are changing rapidly and it is necessary for the brake manufacturers to keep their equipment up to the most exacting requirements of railway practice. He added that the Air Brake Association should be careful to maintain its high standing among technical societies by deliberation and wisdom in its recommendations and in demanding carefully prepared papers of prime importance.

The secretary reported a membership of 1,137, including 217 new members; the treasurer's report showed a balance of cash on hand amounting to $2,117.

The first paper, "Tests to Determine the Effect of Low Temperature on Air Brake Hose and Coupling Gaskets," was prepared by W. T. Hatch (Canadian Pacific). [It appears elsewhere in this issue.] It was the general opinion of members that the quality of air brake hose is constantly depreciating because of the high price of rubber, and that some of it does not contain any rubber, but is made of substitutes. A. S. Williamson (University of Illinois) said the tests described in the paper were not made under pressure, nor did the materials receive repeated bending while subjected to low temperature; they were prepared to do that kind of testing at Urbana, as they had a refrigerating plant as a part of their laboratory equipment. The "non-freezing" hose now purchased by the Canadian Pacific costs 15 cents per piece more than the regular M. C. B. air brake hose. It was thought desirable to have some change made in the M. C. B. specification for brake hose which would secure this "non-freezing" quality.

A paper on "Air Pumps and Main Reservoir Capacity for Freight Service" was presented by P. L. Langan (Delaware, Lackawanna & Western), who described a number of tests which were made on that road to get reliable data as to the proper capacity of pumps and reservoirs for various conditions of service; as a result of these tests the author recommends the following air pump capacities:

Grade.	Pumps.	No. of cars loaded.	Mixed train.
1¼ per cent.	One 9½ in.	40	55
1½ "	" 9½ "	35	50
2 "	" 9½ "	30	40
1¼ "	Two 9½ "	65	75
1½ "	" 9½ "	55	65

Grade.	Pumps.	No. of cars loaded.	Mixed train.
2 "	" 9½ "	45	55
1¼ "	One 11 "	60	70
1½ "	" 11 "	50	60
2 "	" 11 "	40	50
1¼ "	Two 11 "	80	90
1½ "	" 11 "	70	80
2 "	" 11 "	55	65

To determine what is the necessary pump and main reservoir capacity it is necessary to consider the intensity of braking and the loss of air through leakage. The maximum intensity of braking is limited to 1¼-in. brake pipe for transmitting air with the relatively small differential that is permitted between the head and rear end pressures. The first series of tests were running tests with sixty 40-ton cars on an 80-ft. grade. Then standing tests were made on a 100-car train made up on two tracks so that the first and last cars were directly opposite. It was found that two 11-in. pumps would charge this 100-car train in 11 minutes; one 11-in. pump in 22 minutes, and one 9½-in. pump in 56 minutes. The best method of charging long trains when the engine is equipped with proper pump capacity is with the valve in running position; a higher pressure is obtained in a shorter time in the release position, but a uniform charge in the train should be sought and a few minutes should be sacrificed to get it. In regard to the capacity of main reservoirs: While on level road a relatively small pump capacity and large main reservoir volume could be used to advantage, on grade work increased main reservoir volume will not compensate for inadequate pump capacity. The pumps should be of sufficient size to handle the longest train without crowding them to the work, and while large main reservoir capacity can be dispensed with, sufficient pump capacity is indispensable. Mr. Langan said: "Having taken into consideration the varying conditions on different railways, I feel justified in recommending a uniform main reservoir capacity, and this should be for freight locomotives not less than 50,000 cu. in. nor greater than 65,000 cu. in., and the extensive tests recorded in the paper fully justify this recommendation." The fact was also brought out that large reservoirs will not make up for small pump capacity and the life of the air pump is longer when it is not overworked by too rapid action; also that main reservoirs may be too large for small pump capacity, as it requires too long to charge them to working pressure.

In the afternoon of May 10 a large number of the members went to the car yards near the Pan Handle shops, where some air brake instruction cars were on exhibition. These were from the Pennsylvania, the Hocking Valley, the Illinois Central, the Erie, the New York Central, Big Four and the Chesapeake & Ohio.

On Wednesday morning a report on "Air Pump Piping" was read by G. W. Kiehm (*Railway and Locomotive Engineering*), chairman of the committee. The report contained drawings showing the sizes of pipes, the location of lubricator and governor for single pumps, and for one pump on each side of the boiler or two pumps on one side; also a drawing of an engine exhaust nozzle with an annular opening and connection for the air pump exhaust, which has been tested and is recommended. The committee's conclusions and recommendations are as follows: (1) That the standard method of piping as shown on the drawings be adhered to. (2) That 1¼-in. steam pipe, 1¼-in. governor, 1¼-in. steam valve, be used when two pumps are applied to a locomotive, whether they are 9½-in. or 11-in. (3) There should be little back pressure on the pump and no undue resistance to the escape of exhaust steam. (4) The air pump exhaust nozzle illustrated in the report is recommended. (5) The practice of piping a pump exhaust into the cylinder saddle should be discontinued. (6) An exhaust pipe running along outside the engine stack can be used on freight engines, but is objectionable on passenger on account of the noise in stations. (7) The main exhaust should not be less than 2 in. in diameter when two 9½-in. pumps are used. (8) A 2½-in. exhaust pipe for two 11-in. pumps. (9) There is no objection to the use of exhaust steam for train heating purposes if the steam is obtained by methods that will not interfere with the air pump exhaust. (10) Attention and emphasis is given to the importance of dispensing with elbows in exhaust pipes, using instead easy bends of as large a radius as possible.

A large part of the morning session was occupied with a discussion of the report on "Air Brake Instruction and Examination," and it was then carried over to the following day for further consideration. The report was read by H. A. Wahlert (Texas & Pacific), and its more important statements and recommendations are as follows: Most air brake instruction cars carry locomotive and car equipment for injectors, headlights, valve motion, bell ringers, heating apparatus, car lighting, etc., all of which occupy space, leaving less room for the installation of the air brake equipment. Instruction on these outside subjects diminishes the time for actual air brake work instruction, and for that reason cars carrying these equipments cannot give as thorough air brake instruction as they could if they were entirely free of such outside distractions. Enginemen and trainmen should be taken for instruction separately, and good results can be obtained by giving enginemen from five to six sessions, while the trainmen require only three to four sessions, these sessions being from two and a half to three hours' duration. An instructor may be taken from either shop or road service, if he is a well-posted air brake man, blessed with an amiable disposition, good commonsense and the ability to impart to others the knowledge in his possession in an agreeable, yet firm, manner.

The report contains special instructions for trainmen, machinists, car men and officials. It states that the schedule should provide that the car visit all important points on the road once a year and the men should be notified by bulletin of the approach of the car. Examinations should be made by road foremen when promoting firemen to engineers, but in other cases the instructor should attend to the examination. All enginemen and trainmen should be re-examined at periods not exceeding two years. The instructor should be allowed to leave his car for about two months each year and go on the road and find whether the men are carrying out the instructions received in the car; also in making tests, making repairs, riding with engineers in both passenger and freight service, and giving cab instruction. This would also prevent the instructor from becoming too technical and his mind would be kept broadened by his experience and contact with road conditions.

In the discussion of this report a considerable diversity of opinion was exhibited in regard to the methods and value of the instruction, the character of the examinations, and especially the methods of rating men as the result of examination on air brake fixtures and practice. The report suggests that the traveling engineers should examine firemen in air brake practice for promotion to engineers, but this was objected to by some engineers, who said the air brake instructor was the proper man to examine and rate all trainmen. Further discussion brought out the fact that the subject may be divided into, first, that part relating to the construction and mechanical features of the air brake equipment; and, second, that part relating to the operation of this equipment on the engine and cars; and that two ratings might be used, one as the result of the air brake instructor's examination in regard to the equipment, and the other the result of the traveling engineer's examination as to the operation of the air brake equipment on the engine.

For the special equipment in the instruction car, one member recommended the use of by-pass valves which would artificially create the various defects in the triple valves and their connections. On some lines the number of men requiring air brake instruction is so large that it is necessary to have school rooms at terminals and these rooms are fitted with equipment somewhat like that in the instruction car. These rooms

are always available where there are large numbers of men, while the instruction car is transient and not always at hand when required. It seems important that each railway system should adopt a standard air brake instruction book so that the examinations and ratings should be uniform over the whole line, and this is especially important for the examination of firemen and engineers.

The recommendation of the committee that car repairmen clean triples was not generally approved, as better practice would send triples to the air brake repair shop for cleaning. Objections were also made to machinists or shop men occupying positions as air brake instructors, as the instructor should be an engineer who is familiar with the regular operation of the brake on the locomotive in stopping trains.

W. P. Garabrant (Pennsylvania Railroad) made a progress report on "Brake Cylinder Connections and Brake Cylinder Leakage."

George Christenson (H. W. Johns-Manville Co.) read a paper on "Brake Cylinder Leakage," and described a new form of expander ring for the leather cylinder packing which his company is introducing and which, it is claimed, reduces brake cylinder leakage to a large extent. This new ring has a flat side which causes the leather to have a larger bearing against the cylinder wall. A short discussion followed on the bad effects of closed exhaust ports in retaining valves, often resulting in cracked and broken wheels. It was suggested that the inspection of these valves include a test of the ports by a short wire, to see if they are free and clean.

On Wednesday afternoon, W. V. Turner, chief engineer of the Westinghouse Air Brake Co., gave a lecture on "Brake Operation and Manipulation in General Freight Service," illustrated by numerous diagrams with the aid of the stereopticon. This was introduced by diagrams showing the results of tests made to determine the cylinder and retaining valve leakage on box cars received at the air brake works. They proved that on some cars the initial pressure of 45 to 50 lbs. in the cylinder leaks off 10 to 15 lbs. per minute or 5 lbs. in 30 seconds, and in others 20 to 30 lbs. per minute, while an occasional good packing would only leak 5 lbs. in 2 minutes. These tests also showed that most of the retaining valves leaked so badly that they were practically useless. A new retaining valve designed by T. L. Burton, of the Philadelphia & Reading, was described and recommended by Mr. Turner. This valve is attached directly to the triple, and is provided with a gauge connection so that the brake cylinder and retaining valve leakage can be tested, and made a part of regular inspection. This was regarded as a very important improvement in the method of testing freight brakes.

On Thursday morning the discussion on "Air Brake Instruction" was resumed, and the methods employed by the Westinghouse Air Brake Co., in its instruction and rating were commended as superior in some respects to those in other instruction cars. It was the general opinion that the instruction should extend to work on the road in operating trains. L. A. Ogden, an engineer from the Grand Rapids and Indiana, said the engineers felt that the greatest opportunity for improvement was in the proper maintenance of brakes on the cars and instruction should strongly be directed to that part of the work. Attention was called to the disparity in the amount of instruction given to shop apprentices and to that given to engine and trainmen. On the New York Central one air brake instructor has charge of the teaching of 9,000 men in the construction and operation of the air brake, while every shop has its apprentice school with a corps of instructors. A resolution was adopted to continue the committee for another year, but to eliminate from the next report methods of instruction and give special attention to examinations and ratings on air brake operation, and submit definite recommendations for this part of the work.

T. L. Burton (Central of New Jersey and Philadelphia & Reading) read an elaborate paper on "Stopping Passenger Trains by Emergency Brake Application." This paper makes up a pamphlet of 34 pages, dealing with the fundamental principles and formulae involved in the calculation of the energy of a moving train and the forces producing retardation, all leading up to the calculation of the brake power necessary to stop an engine and train of given weight from a certain speed in a given distance. The paper is illustrated with diagrams from which such information may be obtained directly and without laborious calculation. One of these curves shows at a glance the loss in the coefficient of retarding force resulting from increased weight of vehicle and increased brake shoe pressure. If the factor of retardation of the heavy cars which we have to-day is to be the same as it was with the lighter cars, it is evident that the efficiency of the brake cylinder and brake gear must be increased or the coefficient of brake shoe friction must be increased, or the brake power must be increased, so that the product of three factors will be the same as it was heretofore on the lighter equipment.

The particular question as to how best to make these increases is probably receiving more attention by motive power officials than has been given to any subject in connection with the passenger train brake, and while the problem is not yet solved, the opinion was expressed that no practical or economical means will be devised for increasing the brake gear and cylinder efficiency to fully compensate for the loss in the coefficient of brake shoe friction due to increased shoe pressure on extremely heavy cars. For such cars the only solution seems to be a higher coefficient of brake shoe friction or higher brake power, the latter of which means increased cylinder power. One air brake company has provided practical means for increasing the cylinder value as well as the brake cylinder efficiency for emergency application and has made some wonderful developments in that direction. It remains for the railways and brake shoe companies to increase the brake gear and brake shoe efficiency. As the coefficient of brake shoe friction varies with the pressure and temperature, considerable advantage is gained by increased shoe area, thus providing better means for radiating the heat generated by high pressure. Increasing the shoe area means the use of larger shoes or an increased number of M. C. B. Standard shoes. The former can be accomplished by using a flange shoe. Such shoes have been found objectionable when used on brakebeams having rigid heads, but this does not apply where the brake heads fit loosely on the beam so that the shoe can properly adjust itself to the tread of the wheels, thus preventing flange pinching. Flange shoes can also be used on the beamless type of truck. When flange shoes are used the efficiency of the brake is not only increased by larger shoe area, but also from the fact that part of the shoe pressure is acting at a greater distance from the axis of rotation than the point at which the rail pull is applied. To increase shoe area by increasing the number of shoes virtually means a clasp brake, that is, a shoe on each side of the wheel. Such shoes have been used on one large road for a number of years, and while, to some extent in disfavor, this was largely due to their being used on light cars. They could not have been an entire failure or they would have been replaced long before this. As the problem is to stop the car without regard to truck tilting, the clasp brake seems to recommend itself for heavier cars. A clasp brake is now being applied to 65 cars under construction for the Philadelphia & Reading, and it is estimated that this will so increase the brake efficiency that the cars can be stopped in the same distance that is now required for stopping cars 30 or 40 per cent. lighter, equipped with the single brake per wheel. Placing shoes on both sides of the wheels has merits in the way of reducing journal pressure, journal and brass movements, and this advantage increases with the weight of the car. The paper was discussed by W. B. Turner, J. P. Kelly, S. G. Dudley and William Owens, and a vote of thanks was given to Mr. Burton.

A paper on the "Cleaning of Cylinders and Triples" was

read by C. P. McGinnis (Minneapolis, St. Paul & Sault Ste Marie), which described at length the repair trains which are sent out in the spring for several months' work by the Great Northern, the Duluth and Iron Range and the Duluth, Missabe & Northern. These trains repair idle cars scattered along the road and 20 or 30 men are employed in cleaning cylinders and triples. They aim to clean all cylinders and triples which have not had attention in the previous six months and foreign cars are included in the work.

T. L. Langan discussed the subject of light and heavy application of brakes by the engineer's valve. He explained that this should be governed by the length of the train and should be as low as would be sufficient to move all triples in the train. By experiments with a dynamometer car it was found best, with mixed trains, to place not more than 10 light cars next to the engines; less shock is obtained by this method.

In the afternoon the members and their ladies met for a group photograph, after which the members assembled for an informal smoker, at which time the question of the proper method of applying the brakes with trains of various lengths, speed and weights, was further discussed.

The report of the committee on "Recommended Practice" was read by G. R. Parker. It covered minor changes in previous recommendations; also some additions, the most important of which covered the location of retaining valve piping and the test for retaining valves and their piping on repair tracks.

Mr. Burton proposed the election of Mrs. Parkins, wife of J. A. Parkins, air brake instructor, Atchison, Topeka & Santa Fe, as associate member of the association. Members stated that they had questioned Mrs. Parkins and found her knowledge of brakes such as to justify this action. She was elected by a unanimous vote.

The following officers were elected:

President—T. L. Burton, Central Railroad of New Jersey and Philadelphia and Reading.

First Vice-President—W. P. Huntley, Chespeake & Ohio.

Second Vice-President—H. A. Wahlert, Texas & Pacific.

Third Vice-President—W. J. Hatch, Canadian Pacific.

Secretary—F. M. Nellis, Westinghouse Air Brake Co.

Treasurer—Otto Best, Nashville, Chattanooga & St. Louis.

Executive Committee—S. H. Draper, Northern Pacific; J. A. Albers, New York Central Lines; J. T. Slattery, Denver & Rio Grande.

SPECIFICATIONS FOR AIR SIGNAL HOSE.

The Pennsylvania Railroad has just issued specifications, No. 55-A, for air signal hose, which supersede those issued on November 15, 1904, and reading as follows:

All air signal hose under these specifications is to be canvas wrapped hose not less than three-ply, and should be flexible without kinking easily. The rubber and cotton fabric should be the best of its kind made for the purpose, and no rubber substitute or short fiber cotton will be allowed.

Wrapped air signal hose is to consist of a three calendar inner tube 1⅛ in. inside diameter, straight its entire length and $\frac{3}{32}$-in. thick, surrounded by and well fastened to three plys of friction duck cut on the bias, each ply being separated by a distinct layer of rubber. Over this is to be a $\frac{1}{16}$-in. cover, and at each end a $\frac{1}{16}$-in. cap vulcanized on; not pasted or cemented fast. The cover and cap to be of the same material as the inner tube.

Air signal hose is to be furnished in 22-in. lengths and variations exceeding ¼-in. from this length will not be permitted. The rubber caps at each end are not to be less than $\frac{1}{16}$- or more than ⅛-in. thick. The inside diameter of the hose must not be less than 1⅛ in. nor more than $1\frac{3}{16}$ in., and the outside diameter must not exceed $1\frac{13}{16}$ in. The hose must be smooth and regular in size throughout its entire length.

Each length of hose must be branded with a badge plate of red or white rubber vulcanized fast to the cover, giving the following information:

The name or initials of the railway company for whom the hose is made; the nominal size of the hose as designated by its internal diameter; the month and year in which the hose is made; the name of the manufacturer and the serial number.

A set of letters and figures in tabular form to be used to show the date of application and removal. The lowest number on the badge plate giving the years in connection with the table must be the year in which the hose is made. The following four numbers representing the years, being those consecutively following that in which the hose was made.

The letters and figures in the badge plate must be $\frac{3}{16}$-in. high and $\frac{1}{32}$-in. high in relief, except the serial number, which must be ½-in. in height and $\frac{1}{32}$-in. in relief. [The general form of this badge plate is shown and conforms to M. C. B. Standard.—ED.]

Each lot of 200 or less must bear the manufacturer's serial number. This serial number, which should commence with 1 on the first of the year and continue consecutively until the end of the year, should not be duplicated, even though the hose bearing the original number be rejected. All hose which is made under these specifications for use on the roads included in the Pennsylvania Railroad Company, Lines East and West of Pittsburg, should bear this consecutive serial, and not a separate one for each road.

For each lot of 200 or less one extra piece is to be furnished for test. On the receipt of a shipment at the storehouse one hose will be selected from each lot, properly tagged and sent R. R. S. to Engineer of tests, Altoona, Pa. Shipments must not be used until the sample hose has successfully passed the following tests:

Three inches will be cut from any part of the sample hose to be used for the friction test and stretching test of the tube. The remainder of the hose will be subjected to a hydraulic bursting pressure of 400 lbs. per sq. in. for 10 minutes, which it must stand without failure. At a pressure of 100 lbs. per sq. in. the hose must not expand more than $\frac{3}{16}$ in. in diameter.

A section 1 in. long will be taken and the friction determined by the force and time to unwind the hose, the force being applied at right angles to the line of separation. With a weight of 25 lbs. suspended from the separated end, the separation must be uniform and regular and the average speed must not exceed 6 in. in 10 minutes.

A 1-in. section of the rubber tube will be cut at lapped or thickest part. Marks 2 in. apart will be placed on the test piece, which will then be stretched quickly until the marks are 8 in. apart and immediately released. The piece will then be re-marked as at first and must remain stretched for 10 minutes without breaking. It will then be released and the distance measured between the marks, 10 minutes after the release. In no case must the test piece show defective rubber or a permanent set of more than ¼ in. between the 2-in. marks last applied.

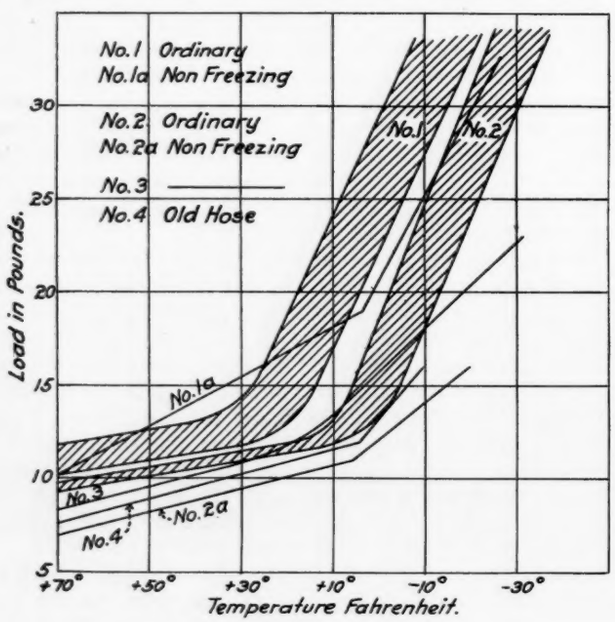
If the test hose fails to meet the required test, the lot from which they are taken may be rejected without further examination. If the test hose is satisfactory, the entire lot will be examined and those complying with the requirements herein set forth will be accepted. All rejected hose will be returned to the manufacturers, they paying freight charges both ways.

Samples representing rejected hose will be preserved at Altoona for one month from the date of test report. In case of dissatisfaction with the results of tests, manufacturers must make claim for a rehearing, should they desire to do so, within that time. Failure to raise a question within one month will be construed as evidence of satisfaction with the tests. The samples will then be scrapped and no claim for a rehearing will be considered.

TESTS TO DETERMINE THE EFFECT OF LOW TEMPERATURES ON AIR BRAKE HOSE AND COUPLING GASKETS.*

At the St. Paul convention, in a paper entitled "Brake Pipe Leakage; Its Causes and Preventions," the committee endeavored to show that air brake hose and gaskets contributed largely to brake pipe leakage, and a number of tests had been made to determine the possibility for and amount of moisture absorbed by hose.

The tests herein described have been conducted along the same lines, with one object in view, that of the elimination of the stiff or frozen pipe. This is a serious trouble with northern railways, so much so that trains are often shortened to enable the company to comply with the laws of the railway commission regarding the percentage of brakes to be operated in a train. When trains not exceeding 25 cars in length have to be shortened it is reducing the earning capacity of the locomotive. These tests were conducted to prove, to our satisfaction at least, that there was a decided difference in the effect of cold on the different makes of hose. We considered that could this point be clearly established, we could expect the manufacturers to supply hose at least as good as the best we might find in our experimental work.



Results of Hose Freezing Tests.

In measuring the flexibility of hose, one end was fastened to a specially built wooden form and the other drawn around into an arc subtending an angle of 90 deg. A spring balance was used to measure the amount of pressure exerted. This was thought to be the simplest way of measuring the flexibility of the complete hose, and while probably not as accurate as some would desire, it was very easily and accurately done and was at least of comparative value for our tests. If one grasps a piece of hose at the ends and bends it around until they are about 19 in. apart, the hose will have a parabolic shape. We used a government tested spring balance reading to 31 lbs. in ounces. This spring balance was not sufficiently strong for some of the hose at the temperature at which we worked. For temperatures down to 4 deg. Fahr. above zero, work was done in a cold storage plant, and for lower temperature we had a special freezing box, using fine ice and calcium chloride to produce the desired temperature.

After notifying the different manufacturers of the tests and requesting from them samples of what they considered would meet the requirements, each manufacturer furnished several pieces. The results of the tests are shown in the diagram. Figures are used to represent the different manufacturers.

Referring to the diagram, the upper shaded portion includes all tests on the ordinary hose supplied by manufacturer No. 1. This includes 12 pieces furnished our stores one month previous to the test. Running through this shaded portion is a single line marked No. 1a. It shows the results of the test on special non-freezing hose supplied by the same company. This hose is not much better than its ordinary hose.

The lower shaded portion shows the results of tests on 10 pieces of ordinary hose of the same age as above, furnished by manufacturer No. 2. It is uniformly better than that of No. 1 as regards withstanding lower temperatures. The lowest line of the curves is Marked No. 2a, and is the result of a test of this manufacturer's special non-freezing hose. This is the best piece yet tested as regards withstanding cold without loss of flexibility. The line marked No. 4 represents old hose removed from cars. Line No. 3 represents tests made on new hose from manufacturer No. 3.

This series of tests satisfied us that there was considerable difference in the stiffening effects of different temperatures upon different makes of hose. We recommend that manufacturer No. 2 furnish us with several hundred lengths of his non-freezing hose to be placed in service test, and that manufacturer No. 1 be notified that his hose is not satisfactory from a cold test standpoint. As all hose tested passed the M. C. B. tests, it was recommended that we include in our specification that all hose accepted must not require more than 15 lbs. pressure at zero to pull it through the curve or arc testing board.

A peculiar condition of the old hose was that six pieces, maintained at 4 deg. above zero for one day, tested at an average of 10 lbs. 10 oz., while the same hose after 30 days at that temperature required 20 lbs. 6 oz. to pull it through the same degree of arc. The same six pieces of hose were then immersed in water of about 80 deg. Fahr. for 12 hours, after which they were returned to the cold storage room for 24 hours at 8 deg. above, and they averaged 10 lbs. 10 oz.

This would indicate that the length of time that hose is kept at a low temperature affects the stiffness which develops, also that the addition of a few grains of moisture makes no apparent difference in the amount of stiffening. Five other pieces of old hose, soaked under the same conditions as the six lengths mentioned, averaged an increase of four grains of water only.

The results of these tests were that 3,000 non-freezing hose were purchased and placed in actual service and tested by aplying to an entire train the hose supplied by two different manufacturers. By putting one of each on each car of a train running from North Bay to Moose Jaw, a distance of 1,454 miles, with a temperature ranging from 24 deg. Fahr. above to 40 deg. Fahr. below zero, the hose seemed quite flexible at all times and could be coupled and uncoupled with ease. One other test was made over three divisions on the north shore of Lake Superior, with the rear half of the train equipped with special hose while the front half had the ordinary. The special hose gave equally good results while the ordinary hose could hardly be bent from its frozen shape. As yet the special hose has not been in service sufficiently long for any definite conclusions to be made regarding its length of life, although it is thought that there will be a noticeable increase. We feel so sure of this that the purchasing department has instructions that all future hose must be of the non-freezing kind.

As the hose gasket plays a very important part in the prevention of brake pipe leakage, tests similar to the hose tests were made and the attention of the rubber company was called to this as well. It was found that when many of the gaskets were subjected to anything like zero weather, they could not be bent without freezing. New specifications were made, and all test hose were equipped with the new gasket and the improvements were very noticeable. The new specifications follow.

*From a paper read by W. J. Hatch at the meeting of the Air-Brake Association, Indianapolis, Ind., May 10-13, 1910.

Rubber gaskets for air hose shall be purchased in lots of not less than 1,000 and shall be delivered to this company in boxes containing 1,000 each. There shall be printed, stamped or stenciled on the box the name of the manufacturer, the size and number of gaskets, and the month and year of manufacture.

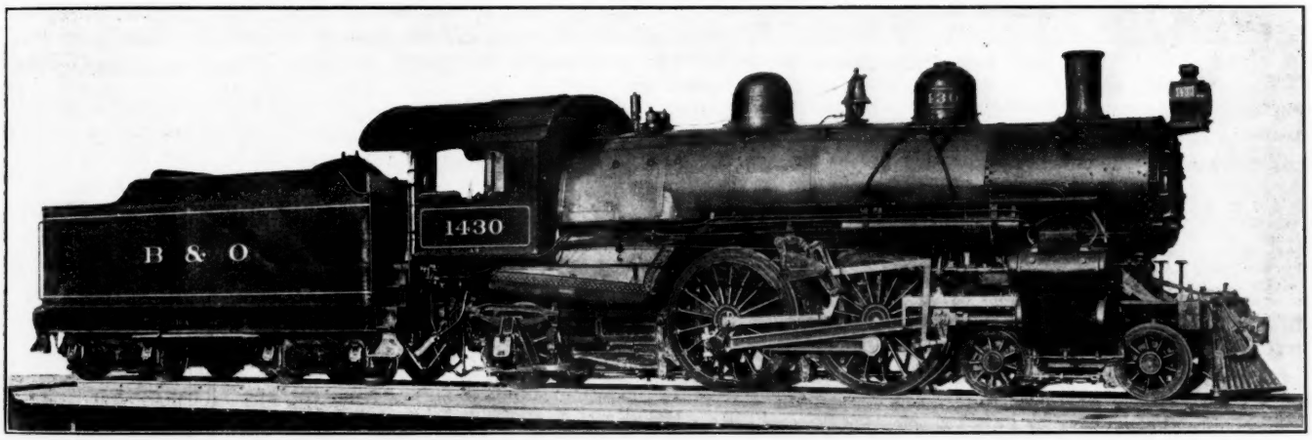
On receipt of a shipment, 50 gaskets shall be selected at random and gaged without standard gasket gage. If any are found untrue to the gage, the box from which the samples were taken shall be returned to the manufacturer.

At a temperature of 70 deg. Fahr., the gasket shall be soft and pliable and shall return to its original shape after being pressed together between the thumb and first finger, and when cooled to a temperature of zero deg. Fahr., there shall be no appreciable difference in softness and pliability. If at zero deg. Fahr. there is any hardness in the gasket, it shall be considered unfit for our service, and if one-half of 1 per cent. of the test hose of any box shows a loss of softness and pliability, the entire box under test shall be returned to the manufacturer.

ATLANTIC TYPE LOCOMOTIVES FOR THE BALTIMORE & OHIO.

Owing to the exacting requirements of present day passenger service it has become necessary on many roads to introduce six-coupled locomotives for handling express traffic. The Pacific type is specially adapted for this class of work, since it combines high tractive effort at starting with ample boiler power. It is generally recognized, however, that for the fastest service a four-coupled engine is preferable because of its simplicity and reduced internal friction when compared with the six-coupled type. Even on railways having roadbed and bridges of the most substantial construction, it is, however, sometimes impossible to secure the required power in a four-coupled locomotive, and three pairs of drivers must then be employed.

With this in mind the recent completion by the Baldwin Locomotive Works of twenty-six Atlantic type locomotives for the Baltimore & Ohio is of considerable interest. These are a straight-forward design of high-speed locomotive, in which special attention has been given to securing ample strength in structural details. The tractive force approaches that of many large six-coupled locomotives, thus fitting the engine for heavy as well as fast service. These engines are designated as class "A-3," and are similar in many respects to the class "A-2" locomotives which have been in service for some time. The principal changes, apart from a general revision of details, consist in the substitution of a radial stay boiler for one of the Belpaire type, and the use of piston valves with Walschaert gear, instead of slide valves with Stephenson gear.



Atlantic Type Locomotive; Baltimore & Ohio.

The new engines exert a tractive effort of 27,400 lbs., and the weight on drivers is sufficient to enable this to be fully utilized under ordinary conditions. The boiler design is characterized by liberal flue spacing, giving room for free circulation, a large grate and a moderate amount of well disposed heating surface. A total of 206 sq. ft. of heating surface and 4.86 sq. ft. of grate area are provided for each cubic foot of cylinder volume. The effective arrangement of the heating surface and the relatively large grate area should insure free steaming under exacting service conditions.

Among the details of the new locomotives, attention may be called to the frames, which are of forged iron, 5 in. in width throughout. Each frame is forged in one piece with the exception of the double front rails. The transverse bracing is exceptionally strong and includes broad steel castings placed above the front and main driving pedestals, and a specially designed brace, also of cast steel, which is placed midway between the driving axles and is bolted to both upper and lower frame rails. The method of supporting the boiler barrel on the frames is of interest. The transverse brace over the main driving pedestal has double waist sheets bolted to it at the front and back, and these waist sheets are, in turn, bolted to T-irons riveted to the underside of the boiler shell. A similar pair of waist sheets is placed at the back of the brace over the front driving pedestals. A single sheet is used to brace the guide bearer and the boiler shell.

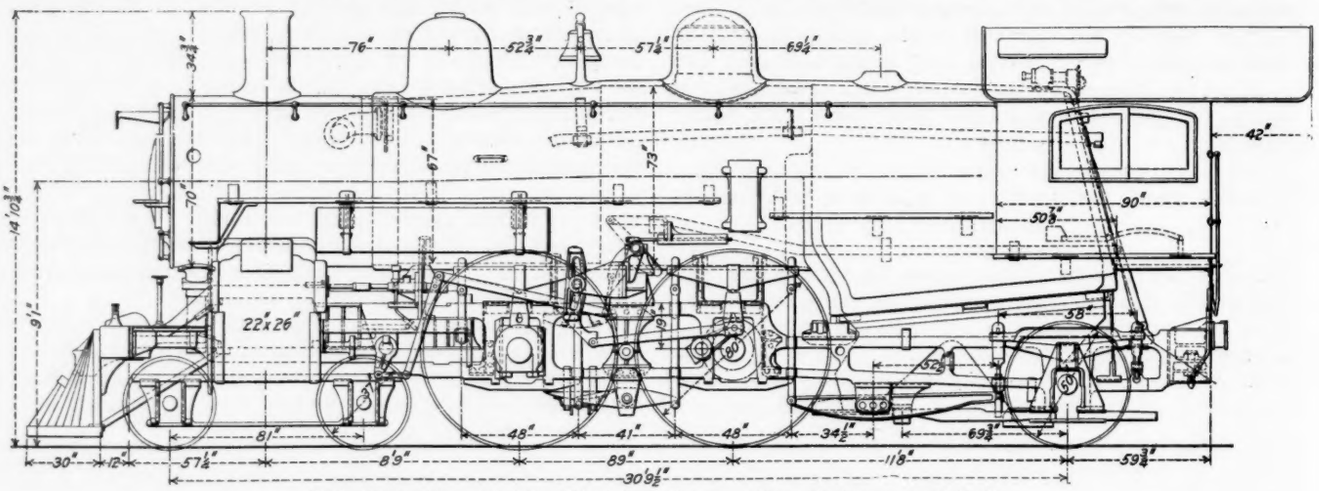
The front truck has a cast steel saddle and a cast steel bolster hung on three point suspension links. The back truck is of the Hodges type, with outside journals, and is placed under the rear end of the firebox, 11 ft. 8 in. back of the main drivers. The side swing is taken by the spring hangers and is sufficient to enable the locomotive to traverse 14 deg. curves.

Each cylinder is cast in one piece with its half saddle, and is lined with a ¾-in. bushing. The steam distribution is controlled by outside admission piston valves, 14 in. in diameter. These are set with a maximum travel of 6 in. and a lead of $\frac{5}{16}$ in.; the steam lap is 1 in. and the exhaust lap zero. The valve gear is simple in design, and is arranged with all its parts in practically one plane. The link bearings are bolted to a steel casting, which spans the frames between the drivers and supports the reverse shaft bearings also. The guides are a modification of the Laird type. They are of cast iron, enclosed at the sides, and are made in halves. The crossheads are of cast steel, with brass wearing surfaces. They are very light and have ample bearings on the guides. The rods are of I-section, the main rod having a forked end at the back, while the side rods have solid ends.

The boiler is of the extended wagon-top type, with two rings in the barrel. The first ring is tapered and has an outside diameter of 67 in. at the front end. The diameter of the dome ring is 73 in. The tubes are spaced 3 in. between

centers, and are kept well clear of the shell. The mud ring has a width of 4½ in. all around, and the water legs are widened towards the top. Flexible staybolts are freely used, especially in the throat, the total number employed being 428. The two injectors and their check are placed on the back head and the feed is delivered near the front end of the barrel by means of an internal pipe. The firedoor opening is formed by flanging both sheets outward. A sleeve is riveted to the inside flange, and a ring is interposed between this sleeve and the outside flange.

The tender frame is constructed of 13-in. steel channels, with wood bumpers. The trucks are of the equalized pedestal type and have cast steel bolsters and solid rolled steel wheels, with rims 2½ in. thick. The tank is rectangular in cross section and is equipped with a water scoop operated by compressed air.



Side Elevation of Atlantic Type Locomotive, Baltimore & Ohio.

The principal dimensions and ratios are as follows:

Ratios.	
Weight on drivers ÷ tractive effort	4.23
Total weight ÷ tractive effort	6.93
Tractive effort × diameter drivers ÷ heating surface	932
Total heating surface ÷ grate area	42.3
Firebox heating surface ÷ total heating surface	7.14 per cent.
Weight on drivers ÷ total heating surface	49.3
Total weight ÷ total heating surface	80.8
Volume of cylinders	11.4
Total heating surface ÷ volume cylinders	206
Grate area ÷ volume cylinders	4.86
General Data.	
Gage	4 ft. 8½ in.
Service	Passenger
Fuel	Bituminous coal
Tractive effort	27,400 lbs.
Weight in working order (est.)	190,000 "
" on driving wheels (est.)	116,000 "
" on front truck (est.)	39,000 "
" on rear truck (est.)	35,000 "
" of engine and tender (est.)	344,000 "
Wheel base driving	7 ft. 5 in.
" " total	30 " 9½ "
" " engine and tender	59 " 9½ "
Cylinders and Valves.	
Type	Simple
Diameter and stroke	22 by 26 in.
Valves	Balanced piston
Wheels and Journals.	
Driving, diameter	80 in.
" thickness of tires	4 "
" journals	10 x 13 "
Truck, front, diameter	37 "
" front, journals	6½ x 12 "
" rear, diameter	50 "
" rear, journals	8 x 14 "
Boiler.	
Type	Wagon top
Working pressure	205 lbs.
Outside diameter, first ring	67 in.
Thickness of sheets	11-in.
Firebox, length and width	109 x 72 in.
" depth, front and back	70 and 57 "
" sheets ....S. and B., 5/16-in.; C., ⅜-in.; T., ½-in.	
" water space	4½ in.
Tubes, number and diameter	247, 2¼ in.
Tubes, length	15 ft. 1 in.
Heating surface, firebox	168 sq. ft.
" " tubes	2,182 "
" " total	2,350 "
Grate area	55.5 "
Tender.	
Wheels, diameter	36 in.
Journals, size	6 x 10 "
Water capacity	7,000 gals.
Fuel capacity	15 tons

REASONABLE FREIGHT RATES.

BY F. H. PLAISTED,
Assistant General Freight Agent, Oregon Short Line.

II.

THE PRODUCER OF FIRST IMPORTANCE.

Railway traffic men, whether or not they have stopped to define their feelings have ever appreciated the predominant interest of the producer and the consumer in the price at which transportation is sold. This interest has been their first care, and while they have sometimes gone far in equalizing conditions for one jobber or jobbing point as against another, they have always considered that the channel through which the articles a community must buy and import shall flow is of minor importance to such community compared with the constant and profitable employment of its productive energies. As a producer the citizen wants to be busy and to make a profit from his business. As a consumer he looks only at the price he pays and it concerns him little to whom or through whom he pays it. The same citizen who is the producer is also the consumer, for whoever consumes must first produce. If he is a prosperous producer he is an able consumer, and to serve the citizen in his first capacity is to serve him in all capacities. The same railway policy which equalizes the producer at one end of the line, by enabling him to sell in all possible markets, acting from the opposite direction equalizes the consumer at the other end of the line, by enabling him in buying to choose from the largest number of markets, and these primary necessities of the public having been met, the question of through what particular channels distribution shall occur sinks in comparison to secondary importance. Distribution and its profits concern many, but production and its profits concerns all, even the distributer, for he must have prosperous producers for customers.

The despatches of October 4, 1909, quote Commissioner Prouty as saying during the course of the second Spokane Rate Hearing:

> "I do not think the Commission will give much weight to the effect this decision (on Spokane rates) will have on jobbing territory. It does not matter a great deal to the people of Spokane whether they purchase their goods through Spokane jobbers or through jobbers from other points, but it does concern them very much whether they are compelled to pay more for those commodities on account of the rates charged, etc."

To this might be added only that it concerns them still more whether the rate adjustment established by the railways tends to keep their productive energies profitably employed. If it does, and considering their rates there, inbound and outbound together, the general adjustment is fair and reasonable and both community and carriers are prospering, it is hard to see what good ground there should be for complaint. In point of fact in these complaints from the jobbers or which are

fomented by the jobbers' associations, criticism is generally based on comparisons rather than on the rates themselves, the lowest basis carried by the railway anywhere, whether under different conditions or not, being selected as a measure for all its tariffs. It is our opinion that when the jobber lives by the rule of using his thinnest profit as the maximum for all his profits it will be time enough for him to endeavor to enforce that rule for others.

THE LIMITS OF A REASONABLE RATE.

There are, then, two boundary lines between which the price of transportation must be fixed, and being so it will be just and fair to all concerned. First—It must not be higher than the producer can afford to pay, or he will be unable to ship at all. Second—It must not be lower than the cost of service, or the carrier will be unable to make the rate at all. Between these if it be somewhere below entire cost, yet somewhat above additional cost of doing additional business—if the conditions require that—it will be an abnormal, but still a reasonable rate. Or it may, if its value to the shipper be sufficiently great, exceed the entire cost, and then it will be a normal and still a reasonable rate, working injustice to no one, and this although it may be higher than the rate for another commodity or for the same commodity under other circumstances. The value of the service to the producer, in other words, is the only reliable measure for the reasonable rate; the only measure fair and equitable to all and resulting in the greatest good to the greatest number.

It frequently happens, against our advice when we are sufficiently informed as to the conditions in advance, that industrial enterprises are mislocated, where, despite anything we can do they are foredoomed to failure, and then generally the railway is blamed for it, although no rates it could possibly have made would have saved the day. When the value of the service to the producer falls below even the additional cost to the railway, then, manifestly, there is no help for it. The business cannot go on. The lengths to which railway men have sometimes gone in the effort to save these unfortunate situations have resulted in the establishment of rates whose promise of return of even the additional cost of doing the business was dubious, besides which these tariffs have been eagerly seized upon for comparisons through which to force reduction in railway revenues elsewhere.

What, in reason, is it necessary for us to do to demonstrate to the people the fact that when an extension of business is undertaken at barely the additional cost, or slightly above that, of performing the additional service, it does not follow, for a carrier any more than for any other concern, that all its revenues may be struck down to that level? Prices so based are expected to yield a small profit which may be applied toward general expenses and so aid to that extent the ability to grant concessions elsewhere, but they produce less than the entire average cost of doing business and to duplicate them on all the business done would mean bankruptcy to a railway just as selling all commodities at a 5 per cent. profit because sugar is sold at a 5 per cent. profit, would mean bankruptcy to a grocer. Surely the people can see that, if they will take the time to look deeply enough into the subject.

AGAIN—WHAT IS A REASONABLE FREIGHT RATE?

A reasonable freight rate for the movement of a product is one which furnishes that unit of transportation at a price the carrier can afford to make and the producer can afford to pay. The value of the service is its measure in one direction, and the cost of performing the service in the other direction. While, with minor variations according to bulk, weight, volume and insurance of the commodity handled, one unit of the railway's commodity is just like another, its value to the producer may be large in one instance and small in another. In one case its price may fairly be based with reference to entire cost of conducting the enterprise; in another case it must be based with reference only to additional cost of doing additional business or it will not be sold at all, depriving the carrier of so much profit which it must then earn on other business or go without, as well as depriving the producer of the outlet sought. Were all rates adjusted with reference only to the higher basis much business could not be done at all. Industrial stagnation would ensue. Were all rates adjusted with reference only to the lower basis the carriers must be bankrupted.

ELASTIC CONDITIONS A NECESSITY.

It would seem that even a superficial survey of the industrial situation throughout the American continent should demonstrate that, as production could have reached its present high state of prosperity, efficiency and wide diffusion only under the most elastic transportation conditions ever established, so if this desirable state of things is to continue the quality of elasticity in our transportation system must not be impaired.

The great commercial nations of history have been those possessing the coast line, the harbors and the ships, and hence the most untrammeled commerce. The sea captains were never required to measure all tne charges by their lowest charge. They carried some goods cheaply and charged higher rates for others, or higher rates under some conditions than for the same goods under other conditions. They carried some tonnage free or even paid for it as ballast in one direction in order to secure a profitable cargo returning, and no one talked to them about each commodity paying its "just share," etc. They were often merchants as well as carriers, or they were the partners of merchants, as, in the absence of the matter, the carriers of to-day are the partners of merchants and producers. There being no "'right of eminent domain" for the orators to seize upon as a reason why their business should be set apart under rules different from those under which all other business was done, they went along carrying the products of the country whose flag they flew to the markets of all the world at rates enabling them to enter those markets, and returning laden with the products of all the countries of the earth to lay them in the lap of the consumer back there at home. In short, they provided for the country whose flag they bore that freedom of movement which insured the unrestricted action of its productive forces resulting in its power and greatness. Is there no lesson for us in this? What the sea captains have done for the maritime nations of history the railway captains have done for this great continental nation of to-day, and will continue to do unless, run regulation mad, our people insist upon the enforcement of rules which will render them powerless. Without the railway the great interior would still be a desert. Without the railway policy of providing that elasticity in charges tending to equalize producing conditions throughout the continent it must have remained very much the same.

The word "discrimination," as flippantly used by the railway critic, appears to have undergone a change of meaning in our language, at least in our railway language. To be discriminating once meant to be judicious, discerning, discreet. To-day there are those who seem to assume that any discrimination is unlawful discrimination. How can it be so? On what authority or on what reason is that assumption based? The law prohibits undue preference and unreasonable discrimination, but there is discrimination which is not only not unlawful, but is absolutely essential if productive conditions are not to stagnate, yet some advocates to-day seem bent on eliminating all discrimination, all judgment, all "horse sense" from the railway business. A transportation system with these elements absent will be a transportation system lacking all elasticity—the very vitalizing quality which has made our great country what it is. Is it not possible to strike the happy medium in regulating, and while eliminating unlawfulness, such as the rebate and preference which is not based on uncontrollable facts, yet to retain that elastic, quickly adaptable, fluid quality of our rate adjustment, which is a prime necessity if productive activity is not to be choked and congested, as it

certainly will be if the day ever arrives when the entire fabric of railway prices must be revised on some uniform "Cost of Service" plan?

"ENTIRE COST" WIDELY DIFFERENT FROM "ADDITIONAL COST."

The three elements composing the thousands of transactions between men going forward every day are: First—The cost of producing the thing; second, the cost of transporting it from producer to consumer, and, third, the price realized for it at destination.

Of these the second (transportation), being far the most flexible, expanding or contracting as conditions have required, has supplied the community where production failed, relieved the community where surplus production occurred, found widening markets for the producer and choice of markets for the consumer, fetched and carried between the manufacturer in the older and the producer of raw material in the younger states, annihilating distance, equalizing the flow of the country's commerce, binding together widely separated sections and welding into a nation what must otherwise have remained, commercially, if not politically, a mere group of provinces. That it is most natural and desirable that it should be so; that it has been and will be so, unless, under the spur of amateurish criticism, our public authorities destroy its elastic quality, and that if prosperity and diffused productive effort are to continue, this must not happen, it would seem should be apparent on the most cursory examination.

The cost of making the thing and the price that may be realized for it are always more or less fixed. Markets fluctuate, but averages do not ordinarily vary through an extended range, or when they do, cost price and price realized tend to vary together. True additional cost as differing from entire cost is a factor in the matter, the same as with a railway, but not to the same extent, for it must be borne in mind that of all the world's producers a railway company has the largest surplus product constantly for sale; the largest surplus and the most quickly perishable, for it must be disposed of each day or so much of it is gone forever. For this reason the difference between entire cost and additional cost in railway operations is more consequential. The original cost of the plant, as well as its upkeep, is enormous, and the resulting burden of fixed charges and charges which are almost fixed correspondingly heavy; but, given the plant and the equipment, maintained as it must be maintained if any business is to be done, and it follows from those very conditions that extension of business may be undertaken, when necessary, on an additional cost basis more disproportionate to entire cost than would be possible for any other producing concern. For this reason it is that transportation "sold close," when the dependent producer's necessities have required that, on the abnormal or additional cost basis, has fixed the attention of observers, and by its sometimes startling deviation from the normal rate, has aroused in the minds of those who are not familiar with these principles, first the suspicion and afterward the conviction that the normal rate is wrong, whence arises the demand that the normal rates shall be reduced everywhere to the abnormal basis.

Will the public authorities be hurried by this uninformed clamor into a course, which, on the one hand, if it results in fixing all rates at the abnormal level or an approximation thereof, will cripple or destroy the transportation business, or, on the other hand, if it results in fixing all rates at the normal level, or even at the average between normal and abnormal, for the reason that at such rates much business cannot move, will stifle commerce and industry; or will they require time for that careful investigation which will separate the problem into its elements, until what is material and what is immaterial, what is true and what is false and what is best and fairest for patron and carrier alike shall be made to appear?

The very attempt to "fix," be the fixing above or below a fair average rate, involves its dangers, for of all elements in our commercial life, conditions under which transportation occurs are the very ones which cannot be fixed and which it is more or less dangerous to try to fix at all. In aiming at a desirable stability it will not do to attain a disastrous rigidity, and if our public authorities rise to the measure of their opportunities they will perceive in time that the great duty resting upon them is to find a way to curb the undesirable tendencies of this giant without crippling his ability to perform the work of the giant that he is. The people and the people's representatives are strong enough to bind his arms and chain his legs and throttle him, body and brain, if they will, but wise people and wise representatives of the people, in the exercise of their wisdom, will find a way to curb and not destroy him or his power for good.

TRANSPORTATION IS THE SPRING ON WHICH COMMERCE RIDES.

Inland commerce was originally conducted almost wholly on the rivers, lakes and canals, and we still speak aptly of the "channels" of commerce. The canal, once dug, and the water turned through the sluices, would float a thousand boats as easily as one. *Additional cost* meant only the cost of operating the additional boat, and the difference between operating a boat half laden or operating it full laden was almost negligible. It is much the same with the railway, and from that basic fact of the wide difference between entire cost and additional cost in railway operations better appreciated and utilized by American than by European railway managers, has resulted the American Railroad Policy, sharply different from the European "zone" plan, which has constituted American transportation the spring which prevents American Production and commerce from riding on a "dead axle," and so permits it to ride farther and faster and with greater ease than any other continental commerce in the world. In the reduction of friction is found the source of its efficiency. Is the spring to be broken or thrown away? Whenever it vibrates under the jolt of the producer's necessity in passing a bad place in the road is it to be held to the most depressed position it assumes under the strain, until it will be no spring at all, or will the people be wiser and still ride easily as they have done? More easily, perhaps, than they will ever realize until they have tried the road in Mr. Regulator's rigid vehicle or some form of cost of service plan.

The fathers wisely forbade in the constitution the imposition of tariffs between the States, preferring to leave internal commerce so far as might be unfettered, that thereby this country might become in fact, as well as in name, industrially as well as politically, the United States of America. Will the sons now impose transportation conditions so inflexible as to prove more effective than any state tariff could be in preventing uninterrupted exchange of product for product between American communities? It is unbelievable, yet the country is filled with rate fixers who propose "zone" systems or other hard and fast schemes which commend themselves so readily to him who perceives the evils and imperfections, but overlooks the benefits of the transportation policy under which American progress has outstripped the world.

IS THE PACIFIC COAST PREFERRED IN RATE MAKING?

It is often alleged in our intermountain country here that the coast is being favored by the railways. Is it? The coast possesses its advantages. The ocean is there and the ships are there. But has not the interior compensating advantages which furnish the reasons why some men live there and all do not live on the coast? There are mountains of ore there, and beds of coal, and fertile, productive valleys and plains, and ranges for the flocks and herds, and forests of timber and the thousand and one rich natural resources which have attracted men, but which would have remained practically untouched but for the coming of the railway and with it the railway policy of opening the way for the movement of the vast tonnage produced there to its distant markets? Are the people of the interior generally making less money than the people on the coast? If so, it is a wonder we have any in-

terior population, or that we ever got one in the first place. But we don't believe it is true, for we have been told and the Interstate Commission has been told, more or less tearfully, by the sea dwellers, particularly the jobbing sea dwellers, that the natural advantage of their location is being nullified by the disposition of the railways to favor the interior. What are we, then, to believe, in view of these conflicting complaints? This, if you please, that neither story is altogether so and that those who have had so much to say on the subject, while they have been at pains to search our tariffs and point out any disadvantages they could discover, particularly from the jobbing standpoint, have been equally careful not to mention their respective advantages.

It is our desire to be fair and just to all and to charge no more than the reasonable freight rate to any, the question being what is to determine the reasonable rate. By the jobbers' measure it seems frequently to be a rate that will let him into the territory and keep his competitor out of it; or when he talks of "an even break" he means an even break on the last commodity and to the last station in what he calls his natural zone, the views of competing jobbers as to what their natural zones are being never very harmonious. Although on 90 per cent. or upwards of the commodities dealt in at some point in disputed territory, the freight adjustment may favor the jobber, he will remain silent as to these, while bitterly complaining of his disadvantage on the other 10 per cent. Although at 90 per cent. or over of the points within the lines of what even he is pleased to designate as demarking his "naturally tributary" territory, the freight adjustment favors him, he will omit mention of these, while harping on his troubles at the other 10 per cent. of points. We are unable always to accept the jobbers' idea of what is a reasonable adjustment, even if different jobbers' notions about it ever coincided, which they do not and never will.

Freight rates must be reasonable, but they cannot be made with a tape line; rather their reasonableness is to be tested in the light of their primary purpose of transporting from him who makes to him who consumes. If they well serve that purpose, then they are not to be made the football of contending middlemen, demand "equalization" (which always means *reduction* to the lowest basis discoverable) from public authorities until there will be so little left to equalize that the power of the carrier to perform its elemental function of carrying from him who makes to him who uses will have been seriously impaired. Realizing that our tariffs are never perfect, we constantly readjust them to the changing conditions, but we cannot undertake to equalize the distribution of every commodity from every point of production, through every jobbing center to every point of consumption in the territory in dispute. We find ourselves entirely unable to keep pace with the demands of rival jobbers in overlapping territory in this respect and feel that we must generally content ourselves with making the rate reasonable from the producer's standpoint, basing it on the value of the service to him and leaving jobbing points and distributive channels for the several commodities to arrange themselves to some extent by natural selection and jobbers to equalize the transportation element in their business somewhat as they equalize other elements, offsetting some of the disadvantages they tell us about by utilizing some of the advantages they don't tell us about.

The persistence with which complaints are pressed by the jobbing faction in the community leaves little room for doubt of the conscientious belief of the complainants that they have real grievances; still, despite the many alleged abuses, there is not a city on the map from which these complaints emanate which is not in a flourishing condition, and we have yet to find the jobber who is not flourishing with the rest of the community. Will the jobber be fair and frank enough to look deeply into this question with us and try to discover whether after all the comparisons on which he has relied are based entirely in reason and on sound economic principles? Will he examine with us closely and in detail into this problem to determine whether it is not possible, granting that our adjustments always lack much of perfection, to work out the solution step by step, rather than to hurry to some cure which may be worse than the disease?

Some able railway officer has said (in the "Traffic Bulletin" of October 9, 1909) that "the existing rates are in theory very wrong, but in practice have made the country very rich." Mr. S. O. Dunn, of the *Railway Age Gazette*, in his able article on "The Protective Tariff and Railroad Regulation," has pointed out that while it is frequently shown why the government can deal differently with the common carrier than with others, the reason is not apparent why it should do so. And we insist that when salesmen in other lines of business base their own prices on value, yet contend that the price of the carrier's commodity be based solely on cost, it seems incumbent upon them to explain why that is so and how it will be better so, either for the carrier or the people.

Generally, not always, the trouble flows from mutual mistakes, either of the facts or the economic principles underlying the facts. While no traffic man would claim perfection for his work, even that part of it limited to his own territory where he has no need to barter with connections in order to secure so much as possible of what he wants or the shipper on his own line wants, still, he will be found to be a sincere believer in the general justice of his course. It is the task of the traffic officer to protect and foster the industries already located in his territory, to extend the business done there, and to originate business by exploring and opening up new avenues for productive effort. He is the diplomat who negotiates and the general who fights for the entrance of the producer dependent on his line, into territories served by other lines. The traffic official who appreciates and lives up to his opportunities is invaluable to the communities his company serves as well as to his immediate employers.

It must be explained, this business of ours, not alone to the primary critics of railway matters, but more important still, explained, and again and again explained to the great, fair, justice loving American public. It must be dwelt upon until that great public, the fairest on earth and the most capable of understanding the explanation, once its interest is aroused, has grasped the salient points of the problem and is prepared to render its final judgment. Then, if still it disapproves, the time will have come to abandon our contention and try "zone" systems, distance tariffs or some other plan which the people insist shall be substituted for the present method.

The time seems at hand when the arguments of those who advocate the cost of service plan must be met. Speaking in general terms, at least, they are clear as to what they desire. They want all rates based on "the cost of service, plus a fair profit." Since they are opposed to basing some rates on entire cost and others on additional cost, and since the fact is patent that all rates cannot be based on additional cost, it is fair to assume that in speaking of "cost of service" the advocates of that plan must mean "entire cost of service, plus a fair profit." They want each individual rate based in that way. They want each commodity to pay "its just proportion"; at least they want it charged its just proportion. If then some commodities will not move, or will not move to some markets, they have not made it clear to us what is to be done. They want rates based on distance, which is a rough measure of cost of service, which they say will be simple and easily understood, and they want rates simple and easily understood. In their opinion that will be best for them and best for us. They want our lowest rate to measure all our rates, so we must be careful what we make the lowest rate, even if in being careful we stop business sometimes. That appears to be the program, and before we get into the details it seems simple enough.

For our part we cannot avoid the conviction that when the details are reached the smash will come, and since we advocate the contrary and present plan of basing our prices as every-

one else bases prices, on the value of the service, contending that that is the only method under which the maximum movement at the minimum rate can occur, it devolves upon us to say how it is practically applied, how it produces the reasonable rate and how it is, in fact, fairest and best for all.

CONCLUSION.

While the laws require the commissions to prevent discrimination and enforce reasonable rates, they have furnished no exact rules by which discrimination and reasonableness are to be determined. Left thus to their own resources, what are the commissions to do? Baffled by the intricacies of the problem, many people have urged upon the authorities a resort to a more or less rigid adherence to the distance tariff principle as an escape from its perplexities, but in the opinion of those having practical railway experience some other test of reasonableness than mere weight or distance, or, if you please, "cost of service," in any of its various forms will have to be found if wide industrial disturbance is to be avoided. In order to attain reasonableness is there in fact any necessity for revolutionary methods? When the question is presented as to how railway transportation is to be sold the presumption ought to be, until good reasons to the contrary appear, that, within the limits imposed by law, it should be sold in the same way any other product is sold. Why should it not? Is it not of significance that railway traffic men, hundreds and thousands of them, composing an element in American citizenship second to none in intelligence and patriotism, who have devoted their lives to a study of this problem at short range, are a unit in believing that no different rule can be applied to the sale of transportation than that applying to all other things, and should not the American public and American railway commissions, before demanding some sweeping change, require very strong reasons why this rule, universal as to other lines of business and supported by unanimous judgment of the men who know *this* business, should be set aside?

THE LONG AND SHORT HAUL QUESTION.

BY A PRESIDENT.

Whether the tariff is entirely a local issue is debatable. But the long-and-short-haul clause is pre-eminently a local issue; *ab ovo usque ad mala*, as it were, not to mention other commodities. Anyone who sat in the Senate last week, hearing the surf of Smoot of Utah pounding upon the piles of Washington, the clatter of Clapp of Minnesota striving to drown the dispassionate logic of Bailey of Texas, would surely have believed the issue as local as the pork barrel.

The House of Representatives had passed *an*, not *the*, Administration bill. And *quanto mutatus ab illo!* Then the Senate began to ponder. Finally it ceased pondering. The ceasing was enlivened by a harlequinade, with back somersaults, by Senator Aldrich and his entire company of "regulars." And here is the result. This is how, by a vote of 57 to 10, the Senate wants the long-and-short-haul clause to look, henceforth and forevermore:

> Sec. 4. That it shall be unlawful for any common carrier subject to the provisions of this act to charge or receive any greater compensation in the aggregate for the transportation of passengers, or of like kind of property, for a shorter than for a longer distance over the same line or route in the same direction, the shorter being included within the longer distance, or to charge any greater compensation as a through route than the aggregate of the local rates; but this shall not be construed as authorizing any common carrier within the terms of this act to charge or receive as great compensation for a shorter as for a longer distance.

Thus much from the bill as it passed the House. Note the insouciance with which the sum of the locals is made the maximum through rate. Bear in mind that this passage was not debated in House or Senate. Remember also that the whole long-and-short-haul clause was not considered in committee. And then, in all charity, let us forgive the insertion of this "sum of the locals" heresy. After all, it puts the rate-making power back into the several states. So we strengthen the commission in one breath, and in the next give the vital secret of that strength back to our "home folks."

But the Senate did not stop here. There's much worse to come. As for instance:

> *Provided, however,* That the Interstate Commerce Commission may from its knowledge, or from information, or upon application, ascertain that the circumstances and conditions of the longer haul are dissimilar to the circumstances and conditions of the shorter haul, whether they result from competition by water or rail; then it may authorize a common carrier to charge less for the longer than for the shorter distances for the transportation of passengers or property; but in no event shall the authority be granted unless the commission is satisfied.

Senator Paynter must answer for this delicate implication that the commission itself may possibly know something, aside from what it can find out upon inquiry. Here's a-hoping.

The next patch is a segment of clear blue sky; its intentions are honorable, viz.:

> that all the rates involved are just and reasonable and not unjustly discriminatory nor unduly preferential or prejudicial.

The ceremonies conclude with a saving clause, a sort of prayer for those at sea, originated by Senator Dixon. It reads:

> That no rates or charges lawfully existing at the time of the passage of this amendatory act shall be required to be changed by reason of the provisions of this section prior to the expiration of six months after the passage of this act, nor in any case where application shall have been filed before the commission, in accordance with the provisions of this section, until a determination of such application by the commission.

To summarize, the clause is as honest an attempt to be fair as could possibly be made by men who know nothing of the subject.

The Senate's aggregate, or conglomerate, intellect evidently worked somewhat thus:

A. Existing rates:
   (1) preserved in force for 6 months.
   (2) also preserved in force additional time while under consideration by the commission, the Court of Commerce and the Supreme Court.

B. Future rates:
   (1) carrier needn't establish any.
   (2) if it does, however, the commission will preserve lower rates for long hauls wherever proper.

Chairman Knapp has said that it takes seven expert rate clerks eight days to examine the tariffs filed with the commission in *one day*. Thousands of rate schedules are filed every week. At a conservative guess, one-quarter of these schedules involve the long-and-short-haul principle in some aspect or other. Should the Senate's section 4 become law, the harrassed traffic officer will have to decide, in every such case, whether to keep his existing schedules and pray that the litigation respecting them may be unceasing and perhaps at the same time see a competitor getting the business, or to embark upon the pains and perils of getting the commission's approval to new tariffs, with the possible result of new commission-made adjustments that will utterly disrupt existing conditions. *Some* railways will be sure to choose the latter course. The commission's work will speedily fall behind with the daily throngs of such applications, and soon it will be impossible to get action on them as fast as necessary to keep pace with changes in ownership, opening or abandonment of waterways, completion of new mileage and all the other matters that require the long-and-short-haul rate adjustments.

The very worst thing about the Senate's clause is that it takes from the carrier the right to decide whether the competition to a given point is sufficient to justify a lower rate thither than to intermediate points. This is not said by the carriers from a selfish viewpoint. ***For the commission is to be left without any standards whatever, and its action is not to be subject to review.*** Contrary to the impression prevailing among the Senators, there will be no appeal from its orders under this clause unless they contravene the Federal constitution. The recent Illinois Central case settled this; and the new Court of Commerce is, at this writing, not to have any powers not "now possessed by circuit courts of the United States and judges thereof." Both the railways and the shipping public have countless reasons for wishing to preserve the

equilibrium now maintained by existing long-and-short-haul discriminations. But their judgment is to be ousted in favor of the commission's, whose fiat will be final. For trained judgments anxious to see the largest possible traffic and the widest freedom of markets, it is proposed to substitute the decision of commissioners who are, as far as the actual traffic and trade are concerned, the veriest lookers-on in Vienna.

It may be that the Man from Mars would ordain a distance tariff for us. Such may be the ideal method. But our mundane brains have worked out the present system as best fitted to our needs and development, and as best warranted to give equal opportunity to all producers and all consumers. Very likely certain intermountain rates are unjustly high. But the Senate, in order to correct a few abuses that have been vigorously played up by one or two insistent senators, is willing to enact a law that will destroy the entire rate fabric, raze the prestige of many centers of trade and raise that of others, and result in confusion, loss and disaster. Let us hope that the Senate will see the error of its course before the Administration bill even gets as far as conference.

CHINESE LOAN NEGOTIATION CLOSED.

It is understood that the banking interests of Great Britain, Germany, France and the United States have reached an agreement as to the Chinese loan, and that the four countries will participate equally in a loan of $30,000,000, and that the countries shall have equal rights and opportunities in all matters relating to the purchase of materials, and that engineers of foreign countries shall be employed on different sections of the work in equal proportion under the direction of the Chinese director general. The loan provides for building a line from Canton north to Hankow, 600 miles, and from Hankow west to Ichang, 533 miles.

RAILWAY STOREKEEPERS' ASSOCIATION.

The seventh annual meeting of the railway storekeepers was held at St. Louis, Mo., on May 16, 17 and 18. Several interesting papers were read and discussed. The most important report received was that on "Material Classification" by a committee composed of the following: T. D. Reed, chairman; J. H. Ellis, L. A. Williams, T. W. Flannagan, H. E. Rouse and N. M. Rice. The committee had been considering this subject three years, and reported a complete classification, grouped under four heads, namely, Maintenance of Way and Construction, Maintenance of Equipment, Conducting Transportation and General. This method of grouping will permit of an analysis being made of material expenses by departments, if desired, and will make the material classification conform very closely to the classification of operating expenses of the Interstate Commerce Commission.

The list of officers elected for next year will be found on page 1286.

The following are abstracts of some of the papers presented:

Handling and Arrangement of Supply Cars.

I.

BY A. S. M'KELLIGON,
Southern Pacific.

This paper is a review of the supply car system as in operation on the Tucson division of the Southern Pacific. Our purpose is to deliver on a regular day every month of the year, to section foremen and others, what material they require for the ensuing thirty days; to pick up all tools and material in need of repairs, and all scrap on the entire division.

We have two regular supply cars fitted up, one being the oil car, the other a living car for the supply car storekeeper and his helper, in which is also stored supplies for station men, pumpers, etc. We add to this equipment, three common standard freight cars in which is stored all spikes, track bolts, track tools, etc., for section men and supplies for signal maintainers on the block signal system. To this equipment we usually add on leaving El Paso three empty flat cars, with side boards, and one empty box car, the latter being used to load all second-hand track tools for repairs, such as picks, tamping bars, shovels to be rehandled, etc., as well as all other material of that nature. On the three flat cars we load all scrap, endeavoring as far as possible to keep the different classes of scrap separated. In one car we load all the car scrap, second-hand material, such as brake beams and couplers, which we find along the right-of-way. It is always understood that this scrap is assembled at section tool houses and piled conveniently near the tool house close to the track, where it can be loaded in the least possible time. For this purpose we have an air derrick with a capacity of three tons, with the superintendent's business car and a caboose for the crew, makes up our supply train.

This train is run as a special on the 18th of each month, and is also used as a pay train, pay checks being delivered to the section foremen, extra gangs, etc., by a regularly authorized division paymaster. On this trip are the superintendent, storekeeper and the several roadmasters, who go over their respective districts. At times we have the division engineer with us. It takes four days to make the main line trip from El Paso to Yuma, a distance of 560 miles. Every tool house is entered, personally gone over by the superintendent, storekeeper and roadmaster, pump houses, pumpers' quarters and station quarters inspected. Wherever the section foreman has a surplus of tools they are turned over to the supply cars and due credit allowed. Where he may have an insufficient supply, he is fitted out with what is necessary to do good work. Every tool delivered is inspected. The superintendent knows when he leaves each section that every section foreman is equipped with tools and material to do good work for the following thirty days. Requisitions are, of course, always made out by the section foreman, approved by the superintendent, and are in the hands of the supply car storekeeper four or five days previous to the date the supply cars are scheduled to leave Tucson. On the ground ofttimes these requisitions are reduced or increased in quantity, as the case may be, as conditions may have changed between the time the section foreman placed his order and the arrival of the supply cars, so that it will be seen that this trip is not only to deliver material, but is one of a monthly inspection by the officer in charge of the division, with his assistants. The turning in of old tools and material for the new is carried out and followed rigidly. We even insist upon the return of material which is not further usable, but which in its return shows good faith. Every third month we go over the branch, about 80 miles in extent, the only one we have at present operated under this division. Every pound of scrap is picked up, and when the supply cars arrive at Yuma, which is the western terminus, the superintendent is satisfied that the division behind him is thoroughly cleaned of scrap and in absolutely first-class working order, as to tools and material necessary to do first-class work, and also that every man has been correctly paid.

When these supply cars were first instituted, we picked up so many track tools that I do not believe we ordered a new track tool for nearly two years. Handcars are also picked up on this trip and left at Tucson, our division headquarters, on the trip west, unloaded and repaired. The car with the second-hand tools is also set out, all tools being immediately repaired and all shovels re-handled in the shops, so it is evident that with but very little addition of new tools, the same tools we pick up one month are repaired and given out the following month. Thus, the only charge made against operating accounts for this class of material is that of labor and what material is required to repair such tools. As before mentioned, we always take the derrick car, with which we load all frogs in need of repairs, as well as handcars, and

almost every trip during the past four or five months we have picked up wrecked cars, loading wheels, bolsters, etc., which in each case means the saving of sending our 100-ton derrick and crew to the scene of the wrecked car. Of course, the trucks are separated by a couple of car men sent out for this purpose on passenger train in advance. The saving in the operation of the supply cars cannot be correctly figured; they are so diversified and so many. Following are some of the things they eliminate:

They have reduced O. S. and D. reports on damaged and company freight 95 per cent. They save local freight crews handling this class of supplies, which almost invariably means overtime to them. They save revenue trains handling this class of freight. They save local freight trains from being burdened with a lot of material sent in haphazard from sections and stations from month to month for repairs. They save the loss and leakage of oils on shipments made by local freight and consequent damage to commercial freight, which is often loaded along with company supplies. They pick up all the scrap and get it to the mills, instead of leaving it for the roadmaster to drift a car, which is handled by local trains, set out at station after station, and then the scrap is only half picked up. They reduce complaints from section men and others as to non-receipt of material, as we hold their receipt for material delivered on their requisitions.

Before the advent of the supply cars we ran a scrap train with an extra crew over this division a number of years ago. When we arrived at Yuma, the western terminus, we had picked up forty-four carloads of scrap. We now average about ten or twelve carloads of scrap per month, representing all kinds of scrap and second-hand material.

The Los Angeles division several years ago ran a strictly scrap train once only. It took them about three months to complete the division, including all branches, and the value of this train figured over $40,000, and the operating accounts were credited with that amount.

Our division superintendent feels that only by accompanying the monthly supply cars, noting conditions, can an approving officer be qualified to correctly sign these monthly requisitions for material.

There was considerable antagonism against the supply cars when they were first inaugurated, but section foremen and roadmasters would now be a unit in opposition against their discontinuance, and they were the ones who looked upon it with suspicion and distrust when first inaugurated.

On a trip in the early part of last January we were accompanied over this division by the general storekeeper, and on the completion of the trip he requested that I give him the figures as to the value of the material delivered and the value of material picked up, which I also give herewith:

Material delivered	$3,769.15
Second-hand tools and scrap picked up	2,510.97

We issued 50,000 lbs. of track spikes at $2.06 per cwt., which means a money value of $1,236; also 10,000 lbs. of track bolts at $2.98 per cwt., $298, or a total of track spikes and track bolts issued, $1,534. The difference in price between the above new and the same amount of scrap picked up would be 70,000 lbs. (35 tons) wrought at $15 per net ton, or $525. The net difference between the new and the scrap of this specific material issued is $1,009. It will be observed from this that the difference is not in the volume of material picked up, as against that issued, but only in the price as against the new and the scrap, and this is covered mainly by the track bolts, track spikes, etc.

At our Tucson store there is not a pound of freight which goes through the local freight house. What we cannot load in car lots the supply cars deliver. We do our own billing; in fact, the local freight house is not troubled with us at all.

The inspection given by the superintendent and his assistants has had a wonderful effect on the general appearance and tidiness of tool houses, as there was a time when each section man had so much miscellaneous material in these tool houses that they had hardly room enough to get their handcars inside and they were ordering material which they had buried under sacks of spike hole plugs, etc. The inspection of sectionmen's tool houses and their equipment, as one feature only, will be a commendation to the supply cars.

II.

BY C. H. ROST,
Chicago & Eastern Illinois.

On the road with which I am connected we operate four cars, consisting of:

1.—Car with necessary shelves for miscellaneous material and supplies for all departments. This car is arranged with ample space to provide sleeping accommodation for attendants.

2.—Car with necessary racks and shelves in one end for roadway tools, the other end floor space for spikes and track bolts.

3.—Car with necessary tanks with self-measuring pumps for oil supply; also contains waste bin and necessary racks for oil cans.

4.—Ordinary system box car for stationery. This car is loaded by the stationery department, supplies being loaded in station order, and car is released as soon as empty.

The first three cars mentioned are provided with end doors, to enable attendants to pass from one to the other while train is in motion. They travel on local freight trains when making deliveries, and cover the entire line of 1,000 miles in ten days, two attendants being required to handle the work.

One of the greatest advantages gained by operating the car is the picking up of old material, a large percentage of which can be repaired at a small cost and reissued. We insist on old material being turned in when new is drawn. On return of the cars this is closely inspected; any worth repairs is immediately put in shape to be reissued and the worthless scrapped, credit as to its worth being allowed the department to which it properly belongs. If this material was not picked up and taken care of by the cars, it would reach the scrap dock in scrap cars, and would nearly all be worthless, and unfit for repairs when received in this manner. The value of the material picked up for repairs by the supply cars will more than pay the expense of operating them.

Once each year, usually in October or November, in connection with the supply cars, we run what is known as an "Economy Special." Accompanying the special are all division officers, representative of the stationery department, and last but not least, the storekeeper. Every building on the right-of-way—stations, towers, shops, roundhouses, car repairers' shanties and handcar houses—in fact, everything resembling a building is entered by this army of co-workers, and all surplus serviceable material and tools, including those needing repairs, is picked up by the special and returned to the general store.

The first trip of this kind was inaugurated three years ago, and the result was amazing to all, the material picked up representing a greater value than was anticipated. The result of this trip cannot be based alone on the value of the material reclaimed, its influence being worth much more to the company, as the trip one year later demonstrated; less than 10 per cent. of the material picked up on the initial trip was gathered in on the second. Some of the older men on the line are talking about it yet, as we gave them all a thorough housecleaning.

Branch lines of from 10 to 40 miles are not covered by the cars, as the small amount of material to be taken care of would not justify the time consumed. Oil cans and tools needing repairs are sent to junction points, and orders are taken care of by the cars at these points and are shipped from there. Branch lines, however, are covered by supply cars once each year when run in connection with the "Economy Special."

Economy in Mechanical Contrivances in Handling Material.

I.

BY N. A. MEARS,
Lake Shore & Michigan Southern.

The expense of operating a magnet varies with the size as far as the electricity is concerned, but the labor cost for both the crane and the magnet is from $5 to $10 per day, and sometimes less.

The saving by the use of the magnet is really quite a figure, although it is usually figured as compared to hand work, and not considered with the crane as a necessary feature. In rough figures, the crane and magnet save from $15 to $50 per day, according to how fast they are operated and the material handled. On the following items the saving shows what can be accomplished.

Loading locomotive tires	Per Ton
By hand	$0.17
By crane	.08
By crane magnet	.04
Loading heavy cast	**Per Ton**
By hand	Almost impossible
By crane	.20
By crane and magnet	.03

You will note that on these items the magnet reduces the cost of handling over the crane cost, particularly on account of the necessity for a good hold on the heavier items when handled by chains or hooks.

II.

BY J. F. SLAUGHTER,
Missouri, Kansas & Texas.

The same standard of excellence should be observed in regard to locating storerooms as in planning machine shops.

The equipment for handling supplies should be selected with a view of securing the greatest results with the least outlay.

The subject is one of supreme importance because of the improvements occurring from day to day in the shops which call for heavier material being brought for repairs to new and better equipment.

The store department should have the same facilities for handling the material. Platforms should be built with a view of using a traveling electric hoist or air hoist. If the work is not of sufficient volume to justify this expense, then an overhead runway for trolleys should be erected and a differential pulley block used. This runway should extend over the tracks for unloading material from open cars.

In addition to this, a small, swinging air crane should be built on the edge of the platform to swing into covered cars for loading and unloading frogs, switches and other heavy material. The cost of erecting these conveniences is small compared with the labor expended year after year by the old methods.

Yards should be located easily accessible, with ample room for switching and suitable for convenient and economical handling of lumber and material. This also requires careful study to see that adequate ground is secured for future growth. As a rule, yard facilities are about as follows:

Spur tracks into storeroom, one into the scrap yard, one into lumber yard, one into wheel and axle yard and one into casting and bolster yard. This necessitates material going in and coming out the same way, consequently often incurring extra expense and making an economical method impossible. Loading and unloading cannot be done at the same time; one must wait on the other, and, as a result, retards the quick movement of supplies.

Let us now see what the economy will be in providing a few mechanical contrivances: The most useful piece of machinery would be a locomotive crane, as it can be used for many purposes.

First, in unloading piling and lumber from open cars. I find it costs $6 per car to handle by hand where cars must be moved by hand back and forth to properly assort them on ways of their respective lengths. This same work can be done with a crane for $1.40 per car, or a saving of $4.60.

Car and engine bolsters cost to handle by hand $5 per carload of seventy-five; these can be handled by locomotive crane for 75 cents, or a saving of $4.25.

One hundred 4¼x8 axles—by hand $5.50, by crane $1.50, saving of $4. Mounted wheels to axles—by hand 75 cents per car, by crane 17 cents, saving 58 cents. These are only a few instances for which the crane can be used, but it is not necessary for me to enumerate further.

I also find in handling scrap that the cost by hand for an average of 100 cars is $7 per car; with the crane it is $2.83, or a difference of $4.37 in favor of the latter.

The same saving can be accomplished in loading piling and heavy lumber. We all know that the cost is greater to load bridge material than it is to unload it.

It probably would be of interest to some of you to know that there is a number of roads that still use the old method of loading, which is like this: Eight or ten men are placed in a coal car, and by the use of ropes drag 7x15x28 to 32-ft. stringers into the car at a cost of from $8 to $10, while this should be accomplished for $1.40. There are many contrivances that are money savers, but none that has come under my observation that equals the locomotive crane for all round use.

Some of their good points:

As a labor saver they haven't any equal; then the amount of material that can be placed in limited space due to the height it can be piled, which, by the way, is quite an item around most shops. This also lessens the amount of ground to be kept clean. It practically eliminates building platforms for frogs, switch points and other heavy material. When labor is scarce your work is not very badly affected.

Handling of Scrap with Crane and Magnet.

BY F. D. REED,
Chicago, Rock Island & Pacific.

The economical handling of scrap can only be accomplished by having proper facilities in the way of scrap docks, cranes and electric magnets.

When you take into consideration that every dollar's worth of scrap sold represents an original outlay ordinarily of from $3 to $10, and in some cases $15, and even more, the necessity for economy in handling is very apparent.

We have at our Silvis general store what we believe to be a very convenient scrap dock, equipped with a traveling crane and magnet, for handling scrap. The dock is the height of car floor, 50 ft. wide, 900 ft. long, with tracks on either side, with capacity of twenty-five cars each. On one end of the dock a space 110 ft. long has roof over it and is used as a stripping shed. The equipment of this stripping shed consists of large motor driven shears for cutting heavy scrap, cutting yokes off of couplers, etc., small shears for cutting old bolts to usable lengths for rethreading, and an air hammer for straightening rods and bolts. The balance of the dock is divided into storage and sorting bins for storage and handling of the various grades of scrap, and sheds for storage of borings and turnings, rope, rubber, waste paper, etc. The dock proper, outside the stripping shed, is served with a 4-ton capacity Gantry type of traveling crane, with cantilever ends. The distance between centers of running rail, or crane, is 34 ft., cantilever ends 19 ft. long, making the crane bridge 72 ft. long, so that the crane will span the entire dock and the tracks on either side of same, to permit the scrap being loaded or unloaded from cars on track at either side of the dock. With this crane we use a 52-in. diameter electric lifting magnet, with which all scrap, including borings and turnings, is handled. The roofs of the boring and turning sheds are

hinged and open out, permitting the use of magnet in loading and unloading same. Scrap that cannot be handled with magnet, such as rope, rubber, glass, waste paper, etc., usually received in closed cars, is handled in steel skips, 5 ft. wide, 8 ft. long, 4 in. high, which are placed at the door of the car, material thrown in same, then the skips are picked up by the traveling crane and the material emptied into proper bins.

Scrap coming from the line, as you all well know, is invariably mixed in the cars, and must be sorted to grade, and the usable material recovered. To accomplish this we have on our dock four large what we call "sorting bins" distributed along the dock. These sorting bins are 40 ft. by 32 ft., and have small partitions or bins around the side, open toward the center. Scrap, when being unloaded from cars with magnet for sorting, is dumped into the center of these sorting bins, scrap sorters sort it and put the different grades in the small bins around the side of the sorting bin.

Miscellaneous scrap can be unloaded with crane and 52-in. magnet for from 2 to 5 cents per ton, and when sorted can be loaded by one man, namely, the crane operator, with magnet, for from ½ to 1½ cents per ton, depending upon the grade of scrap handled. In handling No. 2 railway wrought, which all of you know consists of track bolts, spikes and other small scrap, the magnet will handle on an average of 2,200 lbs. each lift, and our crane can handle a magnet load every 40 to 45 seconds, or about 3 tons every two minutes, the load, of course, varying according to the grade of scrap being handled, running from 1,300 lbs. per lift on busheling up to 2,200 lbs., as mentioned above, for No. 2 wrought. Sorting of scrap to grade is the most expensive item in the handling of scrap. This must be done by hand, but the way we handle it here, by dumping it into sorting bins as it is unloaded with the magnet, it can be sorted at minimum expense and a great deal cheaper than it can be done if it was unloaded by hand, and the different grades trucked to the various bins and sorted for storage. Sorting of scrap, the way we handle it here, can be done for from 4 to 7 cents per ton; in other words, we can handle scrap in and out with our facilities for from 10 to 12 cents per ton, including the sorting. Prior to May, 1909 (at which time our crane and magnet were installed), when all scrap was handled by hand, the cost per ton in and out ranged from 30 to 35 cents per ton, which is about what it is costing any railway to-day that handles scrap by hand, or with even very good modern facilities for handling, and to keep it down to this figure they must have good and convenient scrap dock arrangements and an efficient organization.

The cost of installing a Gantry type of crane, equipped with magnet, is less than a locomotive type of crane, and is better adapted for handling scrap, and on a scrap dock that handles from 2,500 to 3,000 tons of scrap per month enough would be saved in labor alone in one year to pay for the cost of installation. Furthermore, with facilities of this kind equipment can be released more readily and cars turned into commercial service, which means a great deal to a railway during heavy business seasons, when equipment is scarce. We recover large quantities of usable material from our scrap continuously, but this is being reduced gradually, and, I might say, has been reduced at least 50 per cent. during the past two years, due to our following it up closely with the outside points shipping in the scrap. Every car of scrap we received containing good material was reported to the man in charge at point scrap was loaded, and his attention called to the number of items of good material received as scrap, and we kept it up to such an extent that very little usable material at the present time is being received with the scrap, except in roadway pickup cars, in which you always find considerable quantity of material lost off from equipment in transit, which, of course, will always occur.

This practice not only cuts out the unnecessary handling of the good material after receipt at scrap dock and shipping it, in many cases, right back to point it came from, but cuts out the expense to the railway of hauling it over the line and back again, which cost at least $0.003 per ton per mile; also educated the men on the line to take better care of their material; in fact, it forced them to familiarize themselves with conditions, as they knew if they continued to allow good material to go in as scrap they would hear from it, and if no improvement, it would be taken up with them through the head of their department, and I might say that we experienced but very little difficulty in getting it lined up, as the other departments worked closely with us in this matter.

To facilitate recovery of usable material from scrap at outlying points, we arranged to have small scrap docks built, of size to suit the conditions, with separate bins for various grades of scrap, and at points where conditions would warrant we had installed small shears and bolt cutting machines, so they could work over old bolts up to their requirements. This not only made it possible for outlying points to take care of their requirements almost entirely of all short lengths of bolts, but put the material in usable condition at once, and cut out the $0.003 cents per mile expense to and from main scrap dock and cut out all expense of handling at scrap dock, loading, etc., which more than offset the extra handling, if any, at points where the recovery work was done.

The introduction of crane and magnet for handling scrap was the means of solving one of the most serious problems we had to contend with, and that was—the labor question. In the west, especially during summer and fall, when demand for labor on farms and construction work on railways and outside work is heavy, it is almost impossible to get ordinary laborers in sufficient numbers to meet the requirements, and labor-saving devices, or machinery for doing the work, are an absolute necessity. Last summer and fall a great deal of municipal and government improvement work was being done in Davenport, Rock Island and Moline, Ill., and a number of times during that period we only had three and four men, outside of the scrap dock foreman and crane operator, on our scrap dock, but we were able to operate the dock very successfully and keep the cars loaded with scrap down to a minimum. If we had no crane and magnet with this small force, we would have been practically out of business, causing a heavy accumulation of cars loaded with scrap, and would have heard from the transportation department in very forcible terms regarding the number of cars tied up that were badly needed for commercial service.

Economy of the Piece Work System in Handling Supplies.

BY D. C. CURTIS.

If we are going to get the largest possible output for the smallest cost, we must interest the man doing the work more than paying him by the hour. A man's interest must be vital if we are to get the best there is in him. We must pay for what we get, and not for what we do not. We must get 100 cents' worth of work for every dollar paid out. This the piece work system accomplishes, as its organization and introduction shows.

At first blush it would seem to be a difficult matter to resolve the handling of supplies into given factors or units. This is not so, as we have a unit to issue or receive everything we handle in the store department, and a record to refer to that is permanent. Lumber is handled per thousand feet B. M. Iron, castings, coal, sand, etc., are handled by the ton. Pipe is handled by the foot. Mixed merchandise is handled by per package of 100 lbs. or less, over 100 lbs. to 200 lbs., etc. Filling requisitions and delivering material to the shops is handled by per item, per piece or per pound, depending upon the kind of material and the local conditions.

Filling requisitions and delivering material shows a very large saving put on piece work, due to the amount of lost motion that creeps in under the day work basis. Shop men will ask what has happened to the store men after they have been put on piece work, as they no longer stop to talk, but

drop the material and hurry away for more. The men group their work, taking or getting all the material wanted from the different sections at one time. One foreman, planning the getting and placing of material, is only one part efficient as compared with a whole gang of four to eight men planning the same thing. In establishing piece work for a delivery gang composed of foreigners, who did not know the material and could not understand English, the prices were based on what was considered fair. The foreigners could not make one-half their day rate with the prices set, and were transferred. English speaking laborers were hired in their place, and they, being able to use their heads, made from 30 to 50 cents per hour.

The men should be given to strictly understand that after a price is approved it will not be changed unless conditions are changed. They can make as much money as it is possible for them to make, and will be paid accordingly. As soon as the men are assured that they will be paid for what they do, they will work their heads as well as their hands and feet, and will take advantage of everything possible. For instance, in one of our yards a derrick gang use long bridge bolts to handle 6-in. cast-iron pipe. These bolts are put in the end of the pipe to slip the sling around, enabling them to handle very quickly six to ten pieces at a time. These bolts are carried on the derrick to be used when needed. When loading a small order the men run ahead of the derrick with bolts and sling and load the pipe without stopping. It is impossible to get work done this way at an hourly rate, but there is money in this method for both the men and the company, as shown below:

Work done on hourly basis on which price was based:	
Labor	$2.50
Use of derrick	2.00
Total	$4.50
Work done piece work in one-half the time:	
Labor, P. W. rate	$2.00
Use of derrick	1.00
Total	$3.00

Saving, $1.50, of 33⅓ per cent

We had four men in one of our lumber delivery gangs and the day we were about ready to start piece work one man quit, and the other three refused to work until another man was put in his place. The piece work system was explained to the three men, and they were asked if they would do the work on this basis, which they agreed to do. Soon after, one of the three left the service of the company, and the remaining two are handling this work, together with a large increase, in about 70 per cent. of their regular working time, making a high rate of pay. The company is saving one man's time and about 30 per cent. of three men's time on this particular work.

At one of the large icing stations, where an average of 100 cars per day are iced, and some days as many as 250 cars, it was necessary under the day work system to take a large force of men from one of the other departments to help during rush hours. However, since piece work has been installed the regular force has handled the work without delaying a single train or having a complaint from the shippers. The men know the more they hurry the more they make.

On one of the scrap docks it was impossible under the day work system to keep the pile of miscellaneous mixed scrap sorted and cleaned up as fast as it came in with the regular gang assigned to this work, it being necessary to put on additional help to prevent congestion. Ninety days after piece work was installed the regular gang cleaned up this scrap without additional help, and now take care of it and have time to do other work; yet a better foreman than the man in charge of this dock cannot be found.

It is impossible to work unintelligent foreign laborers to advantage. A gang cannot be divided, sending one man for a given article, another to the shop for manufactured material, and have others sorting out material. The foreman has to take the whole gang with him, or have part idle, to get even a given size of bolt or article of any kind, as the thing wanted has to be pointed out and motions used to direct their movements.

With the piece work system we are able to hold the men after we have them educated. In May, 1908, a storekeeper hired 50 Austrians who had just come to this country, and they, after becoming familiar with the conditions, were put on piece work. Thirty-five of the original 50 are still working for this storekeeper, one having died and the others leaving the service. The men are making good wages, and it is needless to say they are an efficient force. For increased and intelligent effort men make enough for the work to be attractive. The longer men stay, the more proficient they become, the more money they make, fewer mistakes and breakages occur, and discipline is easier.

Piece work keeps men and methods of doing work out of ruts, as the men are continually scheming short cuts and new kinks. It gives us machines and tools with which to handle work quickly. To show a saving in having machinery to handle material is a very simple problem in arithmetic when on a piece work basis; *i.e.*, lumber handled by hand costs 5 cents to 85 cents per 1,000 ft., B. M.; with a derrick, 15 cents per 1,000 ft., B. M.

Piece work forces the storing of material in the most convenient places for handling. In one of the large new storehouses recently built the connecting rods for engines are kept in a closed rack in the center of the house, without lifts of any kind to handle them with. Piece work would very quickly show the saving to be made by putting these rods where they could be handled with a small crane at a great saving.

Piece work gives a contented set of men, each man in business for himself. Men would rather work piece work than day work, as is shown by the engine men and trainmen being paid by the mile, miners by the ton, etc. These men would not think of going back to the hourly unit. The rapid, intelligent workman receives wages in proportion to work done; ability is paid for.

By What Unit of Measure Is the Efficiency of a Storekeeper Properly Determined.

I.

BY W. M. DICKINSON,
Southern Pacific.

Efficiency is reflected in results of store department operations as shown on paper, by which the operations of one railway may consistently and accurately be compared with the operations of another. Should you wish to compare one division with another of the same railway, efficiency is reflected in the same manner.

Efficiency may be measured by a combination of four units, some of which we have heard much about, both on paper and in convention chambers, others of which, while of equal or more importance, have rarely been touched upon.

The first is service given. Service given is reflected in the ability of the storekeeper to furnish material to the railway market he supplies with speed and accuracy consistent with good maintenance and operation and, at the same time, does not allow his mind to be unduly influenced by heavy calls and rush orders, and always holds himself in such a position that he can reduce his operations as fast as consistent when the heavy calls and hurry orders suddenly cease.

When the storekeeper is in position to furnish the proper material for the proper use, he is at once placed, automatically, in a strong position to demand a much more economical use of the particular item. He can, with consistency, demand the return of the old for the new, and get it. He can require employees to work with less reserve stock, having established a so-called confidence in the store department that the proper material, when required, is forthcoming at once in reasonable amounts. But when by false economical practices, his stock is reduced so that he cannot furnish the

proper materials and tools with which to work, the body of employees lose confidence in him, and at once order double the quantity necessary, in order to form a little stock of their own for the purpose of meeting the requirements when the storekeeper fails to provide the material.

The second unit of measure is the operation on low stock values, or ratio of disbursements to stock controlled.

This is commonly known as a "storekeeper's paper record," and judgment should be rendered on this unit only when coupled with a knowledge of conditions, such as deliveries, distance from markets, amount of betterments and improvements under way, traffic, market and financial conditions, which, of course, mean the consideration of how long it has been since a sudden change in financial and business conditions have caused managements to abandon large projects and immense amount of work; or suddenly proceed from dull times to great activity, which procedure is usually followed by all railways in the immediate locality, and which, of course, tends to exhaust markets and congest traffic.

During the past year an article appeared in the *Railway Storekeepers' Magazine*, also in the *Railroad Age Gazette*,* in which the writer not only measured, but sat in judgment and condemned, the efficiency of storekeepers in general, to the extent of stating that it required $43,000,000 more invested in stock at the close of the fiscal year ending June, 1908, than at the close of the fiscal year ending June, 1906, for doing the same amount of work, on a unit styled as "car mileage density."

The writer of this article, occupying a high position, certainly had the knowledge that the financial panic at the close of the year 1907 had suddenly changed conditions of great activity, calling for immense amounts of materials, which congested markets and required from three to six months deliveries, to conditions extremely opposite, wherein all work was abandoned and nothing done except that which was absolutely necessary to insure safety of employees from injury or the safe operation of trains.

That efficiency was lost is shown by excerpts from the article, as follows:

After styling money invested in railway stocks as "Unproductive Capital," the article proceeds a little later as follows:

"There is less accurate information obtainable regarding the necessity for carrying such large stock of material than about any of the other branches of railway operation. It seems to be generally accepted as one of the evils which must be endured and which in the absence of definite knowledge of the subject must be left wholly to the judgment of 'different individuals' which is only another way of saying that it must be guessed at."

A little later you will find the following quotation:

"It seems incredible that there should be no method devised for regulating the expenditure of this sum, or at least of ascertaining within reasonable limits whether we are guessing correctly or not."

The statement covers 32 railways, and undoubtedly your railway and my railway are included.

I wish right now to serve notice that the sentiment expressed in the two paragraphs above quoted is not agreed to. The facts are entirely the reverse. Our work is producing, the money invested in our stocks is under our perfect control, and we are not guessing at it.

The merchant invests his money in stock and carries it on his shelves and in his warehouse for sale on the theory that it will be turned over so many times per year, and with the turning over earnings will be produced. Why? Not because he needs the material for his own use, but because it is more valuable to the consumers, and he knows that he can turn it over at a profit.

It therefore follows that all materials and supplies are more valuable to the consumer, which, in this case, is the railway, than to the jobber or merchant handling them. The railways, therefore, invest money in stocks of material, not because they expect to make a profit by sale, but because they expect to save expense by the use of it.

Stocks are unproductive only in so far as they are obsolete and scrap, and quite often it is advisable to hold scrap on hand for higher market prices, which in many instances pay several times the interest on the amount invested, which, of course, is a producing feature.

Let us look at it from another viewpoint. Let us suppose that railways invest no money in these so-called "unproductive stocks." Experience has taught us that the practice would result in needless expense many times exceeding the rate of interest on the capital properly invested by disorganization, delays to equipment and the following loss of business, which is caused by absence or lack of material, power or equipment.

The stock balances are invariably used in their totals in these vague statements which are placed before the managements and, of course, the stock balances include not only the storekeeper's stock balance, but the value of all other stocks in hands of all other departments, which cannot be changed one cent higher or lower by him, because they are not controlled by him, and when not in his control he cannot be responsible. I refer to such items as fuel, ties, rail, etc.

It is generally conceded that the money invested in these items is controlled and set apart by the policies of the various managements before the purchases are made, and is that part of the stock balance over which the storekeeper has no control.

An analysis of the stock balance will serve to so simplify it that amounts controlled by the store department can be easily distinguished from that portion controlled by the policies of the various managements and comparison made with an accurate degree of intelligence.

A simple classification might be as follows: 1—Ties. 2—Rails. 3—Fuel. 4—Scrap. 5—Material on hand for construction, improvement and betterments. 6—Material on hand for the actual maintenance and operation for which the storekeeper is entirely responsible.

After you have the material balance analyzed and properly segregated, another important provision must be made before we apply the unit of measure in order to get accurate and consistent comparison of the performance of one road with another. This provision should be a standard method of accounting for the material.

It will be granted by a man searching for the truth that if one railway carries scrap in operating accounts and credits the same account only after the scrap is sold, it will show a higher state of efficiency than another railway that credits operating accounts with the scrap when it is removed and carries it in the material and supplies accounts until it is sold.

It will also be granted that the railway charging material to operating or maintenance accounts when it is shipped from the store will also show a higher state of efficiency than the railway which charges operating accounts only when the material is applied.

Standard accounting should also specify and define what is commonly known as a disbursement. In other words, the railways that include transfers as a disbursement will show a higher state of efficiency than those railways which show only material actually supplied.

We are now in position to apply the proper unit of measure. The article referred to is figured on a unit of car mileage density, principally for the reason that in this factor are represented not only the work done by the motive power and rolling equipment, but also the use made of all facilities provided for expediting its movement, such as roundhouses, coal chutes, water stations, shops, interlocking and signal apparatus, terminal facilities, etc., all of which go toward making possible a greater density of traffic and which demand the use of material for their maintenance and operation, somewhat in proportion to the amount of service which they render.

This argument might apply if railways were working under the policies and practices common 10 years ago, namely, that rolling stock and equipment be repaired only when it is needed. This policy has been entirely reversed during the

*See *Railroad Age Gazette*, July 30, 1909, page 191.

last decade, and progressive railways now place their rolling stock and equipment in good condition during the dull seasons of the year, to have them in readiness for the heavy business period.

This same policy is extended to the maintenance of roadway track, and it is therefore easily understood that proportionally more material is disbursed in the repairs and maintenance of our railways during that period of the year when the car mileage density is the lowest.

Furthermore, it is a well established fact among railway men that during the busy seasons when rolling stock and equipment are in extremely heavy demand, repairs sufficient only are made to keep the equipment in service, whereas if the demands for the equipment were not heavy, more material and more labor would be consumed. This tends to show how little relation exists between the unit of measure suggested and the efficiency to be measured.

Geographical and maintenance of way conditions, such as grades, mountain ranges, which require from three to five engines per train, with 3 to 4 per cent. grades, with every mile a curve, as compared with railways running through the middle western States, such as Iowa, Kansas, Nebraska and Illinois, will illustrate the inconsistency of using the car mileage density basis as a unit of measure, in determining the amount of stock to be carried.

The figures I am about to give you are taken from reports of the American Railway Association's committee on car efficiency, and are authentic and reliable.

On October 30, 1907, this committee reported a shortage of 86,811 cars. This abnormal shortage reflects a corresponding loss in car mileage density, the storekeeper's unit of measure at that time. To show the sudden change to the reverse, this same committee reported that on April 29, 1908, there was a surplus of 413,605 cars, also there were 197,000 cars in shops, making a total of 610,605 idle cars. Storekeepers will also please note the loss of car mileage density. This was the highest number of idle cars reported during the panic, and on July 8, 1908, which are the figures nearest obtainable to the end of the fiscal year, they reported a surplus of 303,560 cars, with 232,000 cars in the shops, making a total of 535,560 idle cars.

In an editorial in the *Railroad Age Gazette* of January 24, 1908, we find the following:

"On January 8 the American railways, including Canadian lines, found it necessary to store 14 per cent. of their car equipment. No such surplus of cars as shown by these reports has ever before existed on the American railways. The nearest approach was in May, June and July, 1903, but the surplus of cars then was only from a quarter to a third as great as that at the present time."

This is quoted to show the inconsistency of measuring the operations of the store department, particularly the stock balances, on a basis of car mileage density, on June 30, 1908, when we had 535,560 idle cars against the same period, with the same unit on June 30, 1906, when we were in a period of great activity, at which time cars were not only short, but at a great premium and with entirely different business and financial conditions.

My object in reviewing this matter is to prove that "storekeeping" has advanced to the same point of scientific perfection as other departments of the railways. Every transaction can be followed and any reasonable exhibit of the work performed can be prepared and comparisons made with the application of the proper unit of measure.

The third unit of measure is the cost of operation per $1,000 of material handled.

The fourth unit should be the condition and appearance of facilities and property under his charge.

In order to place these units before you for the sake of expression or criticism, I have placed their relative value as follows:

1—40 per cent. service given.
2—30 per cent. ratio of stock controlled to disbursements.
3—20 per cent. cost of operation.
4—10 per cent. appearance and condition of property.

100 per cent. efficiency.

II.

BY C. H. DRAZY,
Chicago, Burlington & Quincy.

The one great aim in arriving at a plan of measure is that it may be applicable to railways in general, so that a proper comparison might be made between the various railways.

The various conditions surrounding the railways appear to be a hindrance to any plan; local arrangements, geographical locations, topographical surroundings, etc., make most any plan appear unjust for comparison, the number of locomotives, cars, number and kind of yards, and terminals, bridges and buildings, water stations, miles of track, and many other points go to make the methods suggested seem either impossible or unfair as a means of comparison; and yet, considering all of these conditions and apparent reasons why comparison would not seem possible, the fact still remains that a method of comparison should be determined.

As is generally known, the quantities of material released on large railways is no small factor, and many times affects the stock balance very seriously. This condition, of course, is more frequent where improvements are going on extensively. To illustrate what the stock balances consist of, I have analyzed the stock balances representing a mileage of 27,486 miles of track, 3,573 locomotives, 2,664 passenger cars and 119,250 freight and other cars, the total stock represented by these balances being divided to bring out as nearly as possible to do so what they principally consist of:

Cross ties	$3,969,222
Rail	3,549,932
Coal	1,108,115
Improvements and constructions (excluding rail and ties)	916,846
Ice	94,256
Chemicals, tie treating	61,435
Commissary	88,044
Stationery	92,001
Scrap	232,934
Locomotive and car repairs	2,689,430
Permanent way, track, buildings and constructions	1,640,008
Train supplies, etc	330,920
Total	$14,773,143

Deducting from these figures the repair materials, it would be rather hard to justify the amount carried if it were considered as one stock and compared with the figures representing the expenditure as material for repairs; but there are still other conditions which in any general summary are not readily revealed, the principal of which are as follows: It is found that this stock is carried on 39 stock reports, there being that number of store points represented, and a still farther search brings to light the fact that there are a total of 120 small stocks scattered on the territories of the 39 store points, and known in some cases as sub-stocks, others as working stocks, and still others as shop stocks. These facts are some of the factors which have a very severe bearing on any measure of comparison which we might make.

My view of the measure would be a system of classification which would give the storekeeper his stock balances properly classified each month and divided under the general uses for which the material is to be consumed. It should be a division as shown under the heading "General Accounts" in the classification of operating expenses as prescribed by the Interstate Commerce Commission. I would then measure the stock by the amount of labor expended for repairs charged under each

of the general accounts. I mean by this, taking, for example, the general heading, "Maintenance of Equipment"; the practice is to figure the cost of repairs to equipment, engines and cars, per engine and per car. The percentage which the material bears to the total is easily determined, and the number of days' supply carried could easily be ascertained under such a plan.

A measure of this kind would, no doubt, come nearer to giving us a fair comparison than any of those used at the present time. It would be found that under such a plan some of the stocks would seem excessive, but when the general conditions were compared it would reveal many local conditions tending to increase the amount of stock necessary to maintain the equipment, and no doubt would bring to light many local conditions which could be improved; and the vast amount of money tied up in railway material stocks in the United States is, no doubt, one of the greatest known fields for development and improvement.

Handling Stationery.

BY E. E. HEROLD,
Baltimore & Ohio.

The stationery department of the Baltimore & Ohio is probably handled differently, in so far as the purchasing and printing of forms are concerned, from that of any other system.

No printer or binder is allowed to furnish his own paper or material. The stock or paper for all printed forms or books is supplied of the proper size and weight and in a uniform manner. Knowledge, of course, has to be had of the capacity of all printing establishments doing printing or binding, so that sheets larger than their press capacity will not be sent them.

Printers that haven't the proper capacity are not given consideration when a long run of any form is ordered. Only the large concerns can be considered in instances of this kind because of the necessity of supplying sheets large enough that will meet the capacity of the large size printing presses, thereby reducing the press work to the lowest possible notch.

By this arrangement uniformity of papers and full count are positively secured in every case, provided, of course, the proper check is arranged for in the receiving department. Our receiving clerks are not allowed to receive or see original or duplicate bills or any memo showing the quantity ordered, which arrangement makes it absolutely necessary to count all supplies as received, but if the quantities are very great approximate measurements or weights are utilized.

No special water mark papers are considered or adopted, because doing so would limit competition and make it necessary to confine purchase of papers to the particular mill or jobber controlling the water mark or dandy roll, as it is known by the paper trade generally.

All new forms used originate with the head of each department, but none is printed until thorough investigation is made as to whether or not it can be substituted by any other form in use, as to size, grade of paper, whether or not it abolishes any previous form, quantity that is necessary for a term of 12 months, etc. After all information is in hand, it is not then printed until referred to an official connected with the president's office for his approval.

In a great many instances the investigation brings out the fact that after all the proposed form can be dispensed with without jeopardizing the service in any manner. The fact that all of the departments know that it is necessary to go into detail when a new form is proposed keeps down requests to a minimum.

Duplication of forms is prevented by a card system, showing numbers of all forms, quantities printed, disposition, who originated same and the users.

No old forms are destroyed without positive orders. All forms that are superseded by revised or new ones are used until exhausted, and the new forms not issued on any requisition until then, and to prevent any error in this connection the shipping clerks are given to understand that all revised and new issues of any form are to be placed at the bottom of supply in hand and the old used first. Arrangement of our stock is such that this can be done with the least possible trouble.

This company aims to carry a three months' supply of all material at all times, which includes miscellaneous stationery articles of forms of which there is little likelihood of any change being made, a six months' supply is carried, and in some instances, when the price is attractive, twelve months' supply is carried, and the proper handling of supplies is impossible with less than a three months' stock.

All forms which are considered special or used by one department are shipped direct to that department, and not carried in the stationer's storehouse. In addition to the usual number printed on such forms, the letters "spl" are affixed to indicate that it is a special form, and it is generally understood by all of our people that when these letters are printed no stock of that form is carried by the stationer and, therefore, 60 days' notice must be given him in advance of being needed. The clause embodying these instructions is also printed on the back of our requisition.

Requisitions must be made promptly on the forms provided for the purpose for a 30 days' supply only, but a 45 days' supply should be on hand when order is made. No supplies are shipped without requisition being in hand, except in extraordinary emergencies, and only then on approval of superintendents and heads of departments.

We carry out this rule to the letter, making exceptions only when requisition calls for new forms, daters, typewriters and supplies for any new station or department.

We classify stations to some extent, and keep record of every item ordered from every point. We find this system saves a great amount of stationery, because experience has taught us a great many agents and others on the system will copy their requisitions from month to month verbatim, ignoring the fact whether or not it includes rulers, waste baskets, or any other article of a staple nature.

Most departments are not given the best grade of material and neither are all of the executive departments given all of one brand or all of the best grade of any material. For example, if our car service department orders an entire supply of the best grade of any one article carried, the question is taken up so as to ascertain whether or not a small supply of the best and a preponderance of the second grade would not answer every requirement, and in nearly every instance a concession is made on the part of the official in charge. Superintendents, for example, for their personal use, are furnished with a dozen expensive pencils, and for the use of the office force a cheaper grade, costing less than half, is supplied. No small station is given other than the cheaper grades of stationery.

We have employed in our own printing plant, approximately 80 men, and practically print every page of our tariffs, both freight and passenger, and find (at least) an average saving can be made of 50 per cent., based on the charges of the commercial printers. Our printing establishment is given the same opportunity to bid on "long runs" in competition with commercial printers, and no partiality is shown. In a great many instances commercial printers name a price more attractive on "straight runs" than our own establishment. We only give preference to our printing office in so far as tariffs or time-tables are concerned.

A printing office of this character can handle hurried circulars, forms, general notices, specifications, at a very much less cost than if given to commercial printers with orders to make immediate delivery; that is to say, price is charged for actual time consumed, and one never knows if this is the case with charges made by commercial printers. Where no estimates can be obtained for the lack of time or otherwise, it seems to the writer that a printing office is a necessary adjunct to a railway, if the price of printing at all is considered.

General News Section.

The number of trees planted by the Forestry Department of the Pennsylvania Railroad this spring has been about one million.

The strike of machinists in the shops of the Baltimore & Ohio Southwestern at Washington, Ind., has been ended by the employment of new men to fill all of the positions.

The Merchants & Miners' Transportation Co. has ordered from the New York Ship Building Co., Camden, N. J., two steamships, each 333 ft. long, for use on the line between Baltimore and Jacksonville.

The San Pedro, Los Angeles & Salt Lake, which has done no through business since December 31 because of the great flood of that day in Nevada, washing away about 90 miles of track, will be reopened for through passenger and freight traffic June 15.

The output of the new shops of the St. Louis & San Francisco at Springfield, Mo., for the month of April was 42 locomotives and 46 passenger cars. Of the locomotives, seven were given new fireboxes. The shop worked 25 days during the month and had an average of 720 men in the locomotive department. During this time there was no overtime work.

At Cleveland, Ohio, on Saturday last, the Brotherhood of Locomotive Engineers dedicated its new 14-story building. Over 1,000 members of the brotherhood were present, their annual convention having been held at Detroit the same week. The merchants of Cleveland decorated their buildings in honor of the occasion and the governor of the state was present.

The Alaska Northern Railroad has a steamship on the way from Japan with 3,000 tons of coal; and the Seward Commercial Club has sent a protest to Congress against the condition which makes necessary the importation of Japanese coal, while Alaska has such a large quantity of undeveloped coal. Carrying coal to Seward is as unreasonable, this club thinks, as would be the carrying of coals to New Castle.

An officer of the Chicago, Burlington & Quincy is quoted as saying that there is a shortage of laborers all over the country. It is very difficult to find men enough to do the work on existing lines in the West, to say nothing of the construction of new railways. Of the men sent from Chicago, St. Louis, etc., to new work in the West in the course of a year from 75 to 90 per cent. will leave to work on the farms or elsewhere. This officer says that men are equally scarce in the East.

When the striking machinists of the Missouri Pacific at Sedalia, Mo., were paid off on May 14 for labor done in April, each was handed a personally addressed letter telling him that the company was willing to pay its machinists 39 cents an hour and to give them the same conditions of employment as had been accepted by the machinists of the Missouri, Kansas & Texas and the St. Louis Southwestern; and that if the strikers did not return to work by May 16 their connection with the company would cease entirely. The men did not return to work.

The railways are not the only encouragers of farmers. At Fort Smith, Ark., the Commercial League has established 100 demonstration farms in the surrounding country, and has engaged, at a salary of $2,500 a year, an expert from the Department of Agriculture at Washington, to superintend these farms and instruct the farmers. We judge that the experiment has been going on for one or more years, as, according to the reports, highly satisfactory results have already been accomplished. It is estimated that by the more intelligent selection and use of seeds and fertilizers, the yield of crops in one county (surrounding Fort Smith) has been increased $500,000 in a single year.

The report of delays to passenger trains in the state of New York during the month of March, issued by the Public Service Commission, Second district, shows that during that month 60,202 passenger trains were run. Of these 85 per cent. were on time at division terminals. The average delay for each late train was 29.6 minutes; the average delay for each train run was 4.4 minutes. The principal causes of delay were waiting for trains on other divisions, 32.3 per cent.; waiting for train connections with other railways, 12.0 per cent.; train work at stations, 9.8 per cent.; trains ahead, 7.6 per cent.; engine failures, 6.8 per cent.; meeting and passing trains, 5.5 per cent., and wrecks, 4.8 per cent.

Arbitration of the demand of the members of the firemen's brotherhood working on 49 lines west of Chicago was begun in Chicago on May 16. The arbitration is being conducted under the Erdman act and the arbitrators are Timothy Shea, vice-president of the Brotherhood of Locomotive Firemen and Enginemen, representing this organization; W. R. Scott, assistant general manager of the Southern Pacific, selected by the railways, and Judge William Lea Chambers, who was selected by Messrs. Knapp and Niell. Judge Chambers is chairman of the board and umpire. He was at one time chief justice of the international court at Samoa and subsequently a member of the Spanish claims commission.

The number of surprise tests made on the Pennsylvania Railroad (26 divisions) during the past year is 300,000, or an average of over 800 a day. In about one-fourth of 1 per cent. of the cases faults were detected, but none of these was sufficient to do any damage. Eight divisions showed perfect records. An officer of the road says that in the three years that these tests have been carried out the percentage of failures has been decreasing and the number of accidents has decreased also, and by a far greater percentage. Only about one-sixth of the tests had to do with block signal rules; the rest were made in connection with rules governing flagmen, and the use of fuses, torpedoes and other signals; trains ahead of schedule time, and signalmen relieving each other.

The Canadian Pacific, according to Montreal papers, has issued an order that the employees in the general freight office at Montreal, beginning May 10, shall work from 8 a. m. to 5 p. m., instead of from 9 to 6; and on Saturdays shall stop work at 12 o'clock instead of 1. This is with a view to giving more daylight hours off in the afternoon than have been allowed in former years. In other words, the plan is the adoption of the English "light-saving scheme" without changing clocks. The company has under consideration the adoption of a similar change in other departments. It is said that the clerks have advocated this change, but now that it has been adopted they are worrying as to whether they will be able to get up early enough in the morning, especially those who come into the city by suburban trains and who may find the hours of the trains not so convenient under the new arrangement. An instrument of torture, known as an alarm clock, is said to be having a large sale now in Montreal.

A British Board of Trade accident report quite out of the ordinary is a short one which has just been issued, signed by Lieut.-Col. Druitt, on the death of a woman and her little boy, who were struck by a passenger train at a grade crossing at Townley, on the Lancashire & Yorkshire, March 6, at 9 o'clock in the evening. The crossing is close to the ends of the platforms at the station, and the gates across the roadway were closed, but the small gates for foot passengers were not closed; and the woman, being somewhat excited for fear of losing her train, walked on to the track dragging the boy, notwithstanding the warning shouted to her by the station master. The conclusion of the inspecting officer is that the accident was due entirely to misadventure; but he recommends that the company consider the advisability of having the small gate locked on the approach of trains. (It is regularly locked for non-stopping trains.) The company does not consider that the amount of traffic at the station warrants the cost of the erection of a foot bridge, and the inspector finds no fault with this conclusion. The report says that no previous accident is known to have occurred at this crossing; certainly none in the last 20 years—a statement which, if

made concerning a crossing close to a station on a busy railway in America would be received with incredulity.

Railway Matters in Washington.

Washington, May 18, 1910.

The administration bill is still being discussed in the Senate and the hope has been expressed that a vote would be reached this week, but at this writing it is impossible to predict this with any certainty. Yesterday the Senate spent five hours on the bill without making progress. The most important discussion thus far held in the Senate was that of last Friday, when the proposal to stiffen the long-and-short-haul law came up. After the presentation of a variety of amendments to that section, a compromise was adopted, by a vote of 56 to 10, striking out of section 4 of the existing law the words: "under substantially similar circumstances and conditions," and adding the following:

Provided, however, that the Interstate Commerce Commission may, from its knowledge, or from information or upon application, ascertain that the circumstances and conditions of the longer haul are dissimilar to the circumstances and conditions of the shorter haul, whether they result from competition by water or rail; then it may authorize a common carrier to charge less for the longer than for the shorter distance for the transportation of passengers or property; but in no event shall the authority be granted unless the commission is satisfied that all are just and reasonable and not unjust discriminatory nor unduly preferential or prejudicial, etc.

It is provided, however, that this section shall not go into effect for six months, nor in any case where application has been made to the commission for a modification of the clause, until such application has been acted on. After this amendment was adopted the senators set about trying to see what they had done; and, according to most of the reporters, each faction claimed that it had won a victory. In reality the principal change provided for in the proposed amendment seems to be that the commission will have discretion to decide what is and what is not a circumstance warranting the relaxation of the long-and-short-haul rule. As the law now stands any dissimilarity of conditions warrants a railway in ignoring the rule, the Supreme Court having thus decided. Under the proposed law the question as to whether or not existing conditions are dissimilar will depend on whether or not the commission "ascertains" that there is a dissimilarity.

There is still the prospect of a long discussion in conference and the administration senators were accused by their opponents of voting for propositions which they expected to have killed in conference. The House bill, as it came to the Senate last week, provides for the establishment of a commerce court and for making the long-and-short-haul section absolute; the commission is empowered to suspend increases of rates for 120 days, if complaint is made; the shipper is to have the right to route his freight; the making of a false quotation by a station agent is penalized; physical valuation of railways is authorized; telegraph and telephone companies are declared to be common carriers, subject to the law; a railway which has made low rates to meet water competition may not raise those rates without showing good cause; supervision of the issue of railway stocks and bonds is authorized, and the law is extended to apply to water transportation in Hawaii.

Express Rates.—A resolution has been introduced in the lower house of Congress to appoint a congressional committee to investigate express companies throughout the country. The Merchants' Association of New York has lately passed resolutions on this subject and the committee appointed at the conference of commercial bodies, held at the Merchants' Association rooms May 11, is to carry the subject to the Interstate Commerce Commission on behalf of the "Express Rate Conference of Associated Commercial Organizations of the United States." Among the bodies interested in this conference are the Boston Chamber of Commerce, the New Orleans Chamber of Commerce, the Baltimore Merchants and Manufacturers' Association and the Philadelphia association bearing the same name.

Inspection of Boilers.—The House Committee on interstate and foreign commerce has this week listened to arguments in favor of the bill, which has been before it all winter, providing for federal inspection of locomotive boilers. Herman E. Wills, representing the Brotherhood of Locomotive Engineers, argued in favor of the bill.

The Supreme Court has restored to the docket for reargument the suit which was begun by the Baltimore & Ohio to test the constitutionality of the law requiring railways to make monthly reports of overtime by trainmen and telegraphers.

Express Companies' Earnings Excessive.

The Merchants' Association of New York has submitted a report on the earnings and charges of express companies, and on the showing made in this report a large number of the merchants' associations and chambers of commerce of various cities have decided to send a petition to the Interstate Commerce Commission complaining of the rates and earnings of express companies. The report claims that the present method of making express charges is unfair and illogical. The service which the express company performs is largely a terminal service, and the cost of this service does not vary with the distance over which the express matter is shipped [there are some expenses incident to this service which would seem to vary with distance; as, for instance, wages of messenger accompanying express matter]. The express companies pay the railways a certain fixed percentage of their gross receipts on each package of express, and the railway furnishes the car, transportation, etc. Out of the charge of 50 cents for a package weighing 100 lbs. sent from Yonkers to New York City the railway company gets 23.85 cents for its service and the express company gets 26.15 cents. Out of the charge of $14.50 for 100 lbs. sent by express from San Francisco, Cal., to New York City the railway gets $6.9165 and the express company $7.5835. The claim of the Merchants' Association's report is that the cost of service of the express company on the shipment to San Francisco is little higher than the shipment to Yonkers.

The report then makes an examination of the assets and liabilities and receipts and expenses of the four express companies. It assumes that the receipts from investments should cover earnings on capital invested in other than the plant strictly necessary to conduct the express business, and finds that the net earnings from operation in the express business are exceedingly high. The report goes on the theory that the capital invested in real estate should be allowed a return of 5 per cent. charged out of earnings, and that the total amount of money invested in real estate should be excluded from net capital. On this theory the four express companies have the following capital. The net earnings shown are for 1909:

	*Net capital used in express business.	†Net earnings.	Percentage earned on capital.
Adams	$3,886,036	$1,519,641	39
American	1,716,004	1,809,254	106
United States	1,894,803	468,031	25
Wells-Fargo	4,488,453	3,175,502	71

*Exclusive of value of real estate.
†After deducting 5 per cent. for rate charged on value of real estate.

Increases of Pay.

Messrs. Clark and Morrissey, arbitrators, have awarded the conductors and brakemen on the Lake Shore & Michigan Southern and the Michigan Central, with few and slight exceptions, the standard rates of wages which were awarded on the New York Central (east of Buffalo) which were the same as the rates granted on the Baltimore & Ohio. On the N. Y. C. the rates fixed for the very long passenger runs were lower per mile than the standard, and, in the case of certain other runs the date on which the standard rates should take effect was made January 1, 1911. On the Lake Shore and the Michigan Central there are no such exceptions or postponements. Mr. Garrettson, chief of the conductors' brotherhood, says that the average increase on the Lake Shore and the Michigan Central is 9 per cent., and in the freight service 16 per cent., which means, we suppose, that in the passenger service it is much less than 9 per cent. He says that on the New York Central the average increase was 29 per cent., the rates on

that road having formerly been much lower than on the lines west of Buffalo. The percentage of increase on the Lackawanna was also high, but not so high as on the N. Y. C.

The foregoing statement was given out on Monday. On Tuesday it was announced that Messrs. Clark and Morrissey had rendered a similar decision in the cases of the Cleveland, Cincinnati, Chicago & St. Louis, the Chicago, Indiana & Southern and the Lake Erie & Western, except that in some cases the full increase is postponed until January 1, 1911, as was done on the New York Central. Messrs. Lee and Garrettson made the following joint statement

> The award we received to-day cleans up the entire situation in the arbitration of the demands. We have only three large roads to settle with—the Erie, whose trainmen and conductors vote on the question of a strike is being canvassed; the Central of New Jersey, which is now conferring with the men, and the Reading, the men on which have not yet started conferences with the officials.

The yard conductors and trainment of the Pittsburgh & Lake Erie are to receive the same rates of pay as those prevailing in other yards in that territory; that is to say, one cent an hour less than the Chicago rates.

According to a press despatch, the conductors, brakemen, enginemen and firemen of the New York, Philadelphia & Norfolk have been granted a substantial increase in pay over and above the 6 per cent. which they received in the recent general advance.

The Central New England has raised the pay of its employees to the basis of the rates recently adopted on the New York, New Haven & Hartford.

The New York, New Haven & Hartford, following extended conferences with representatives of the telegraphers brotherhood, has agreed to raise the pay of telegraphers and signalmen. According to reports, signalmen in towers will receive 5 per cent. increase and telegraphers in stations 7 per cent.

The Baltimore & Ohio Southwestern has increased the pay of its conductors and trainmen to the basis recently adopted on the Baltimore & Ohio. It is said that the increases range from 11 per cent. to 30 per cent.

The Cincinnati, New Orleans & Texas Pacific has made an agreement with its shopmen by which about 1,600 employees in this department will have their pay increased 3½ per cent.

A Long Delayed Act of Justice.

W. F. Baker, police commissioner of New York City, has issued a general order designed to put a stop to the outrageous arrests of innocent locomotive runners and motormen that have been common in the city. The order says:

"In the case of persons injured or killed by railway engines or cars or street cars or trucks, or the like, the engineer, motorman, driver, or other employee should not be arrested without a warrant, unless it be obvious on the facts, after careful observation or examination, that the case is not one of accident, but that he is guilty of manslaughter or some other felony, intentionally or through gross negligence.

"Let the practice of arresting such persons without warrant cease, unless as aforesaid. The proper way is to make a thorough examination of the facts and then apply to a magistrate for a warrant, unless the case be one in which the person is plainly guilty of a felony. In the case of all such accidents, let full information thereof be secured, with the names and addresses of all witnesses thereto, and the names and addresses of the engineer, motorman, or driver, as the case may be, and entered on the blotter."

Valuation in Texas.

The order of the Federal court at Dallas, Tex., requiring that the International & Great Northern be sold at foreclosure to satisfy the second and third mortgages, subject to the first mortgage, has called forth another statement from the railway commission of Texas regarding the revaluation of this property. The letter, which was written by Chairman Mayfield for the commission, states that the stock and bond law of the state was passed after an exhaustive discussion and was predicated on the theory that the securities outstanding of the railways of the state consisted largely of water and operated as an "unjust and outrageous burden upon those who pay freight and passenger charges to railway companies." It is stated that attention has been repeatedly called by the commission to this state of affairs and that the appointment of receivers has been asked for "to sell out these railways in order to get rid of this fictitious indebtedness, that the people might be enabled to obtain reasonable freight rates and at the same time justify the same before the Federal courts." It is indicated that the plight of those who have claims against the railways mentioned, excites profound commisseration of the commission, but "it ought not to be expected that the commission would discredit itself and neutralize the virtues of the stock and bond law in order to bring about a condition that will compel the payment of such claims."

Condition in Southern Mexico.

A director of the Pan-American Railway says that the connection between the Pan-American and Guatemalan railways, by the bridge over the Suchiate river, will be completed within ninety days. He says: "This road promises to be an important link in a transcontinental system. The road is owned by American interests. A million dollars will be spent on it. The territory served is the most productive in the entire republic of Mexico. The climate is hot, but not unhealthy. The country produces coffee, cattle, copper, cacao, caoutchouc, sugar cane, pineapples, oranges, and all kinds of tropical fruits, and hard woods.

"A number of large rubber plantations are along the line. The one at Zacualpa is claimed to be the largest in the world, having between eight and ten million growing trees. Land in this section is now selling for one-tenth of what similarly productive lands in southern California can be bought, and it is estimated that ten acres of land in this section can create more wealth than eighty acres of the best agricultural land in the Middle West."

Public and Private Enterprise Contrasted.

The latest announcement is that the great central library in Manhattan will be completed and opened in about a year.

Promises like that have been made before, but the chances are that the great marble palace at Forty-second street and Fifth avenue will be available as now planned. * * *

The history of the building furnishes an instructive contrast between the methods of municipal construction and those of private business. The destruction of the old reservoir preparatory to the construction of the library began in 1897, and since the building contract in 1901, the library cost has risen from $2,500,000 to $10,000,000. Long after the old reservoir was down and the library under way, the Pennsylvania Railroad began the construction of the great marble palace which is to serve as its station, at Seventh avenue and Thirty-first street. That building is at least as large (much larger); its construction must have been quite as difficult; the completed work is a noble and dignified example of architecture, and yet the building will be ready for use this summer. Private construction has been rapid and efficient; municipal construction has been slow and halting, with changes of plan during its progress as well as the usual delays in working.—*Brooklyn Eagle.*

Hours-of-Service Law to be Enforced.

Secretary E. A. Moseley, of the Interstate Commerce Commission, has written a letter to the railways notifying them that the law limiting the working hours of trainmen and telegraphers is to be enforced. He says: "Some of the railways in reliance upon the opinion of the circuit court of appeals for the seventh circuit, reversing the decision of Judge Landis in the case against the Atchison, Topeka & Santa Fe, have been violating the provisions of the hours of service law by splitting the period of service into tricks, or sub-periods, in such manner as to stretch out the full period to a longer number of hours than that permitted by the statute.

"It is but fair that these and all other railways should

be notified that on April 25, the Supreme Court of the United States issued a writ of certiorari, directed to the circuit court of appeals of the seventh circuit, requiring it to transmit the record in the case against the Atchison to the Supreme Court for review.

"The issuance of this writ indicates that there is great doubt as to the maintenance of the position taken by the circuit court of appeals, and prima facie shows a disposition on the part of the Supreme Court to sustain the hours of service law according to its scope and tenor, and to the purpose and intent of its framers.

"As the Interstate Commerce Commission is charged by law with the duty of enforcing the provisions of this act, it is deemed proper to notify you at this time that if violations of returns and provisions of that act are continued the commission will consider it to be its duty to institute proceedings in the various courts having jurisdiction of the same to enforce the law."

Capitalization and Earnings of Industrial Companies.

The following figures are taken from the advance sheets of Poor's Manual for Industrials, a new book to be published by the Poor's Manual Co. The figures are only for companies making returns to Poor's so that while the number of companies refusing to make returns was comparatively small the total figures are only approximately correct for all corporations in the United States.

Capitalization of Corporations in the United States.

	Stock.	Bonds.	Total.
Light, water and power companies	$2,108,233,079	$1,392,653,050	$3,500,886,129
Mining companies	2,001,925,586	66,850,265	2,068,775,851
Telephone and telegraph companies	788,709,274	352,025,050	1,140,734,324
Manufacturing and miscellaneous companies.	8,233,035,721	2,585,694,207	10,818,729,928
Total	$13,131,903,660	$4,397,222,572	$17,529,126,232

Interest and Dividends.

	Interest.	Rate.	Dividends.	Rate.
Light, water & power companies	$69,219,335	4.97	$63,867,681	3.03
Mining companies	3,741,783	5.59	58,866,089	2.94
Telephone & telegraph companies	18,463,462	5.24	37,356,517	4.73
Mfg. & miscellaneous companies	140,251,087	5.42	368,721,516	4.47
Total	$231,675,667	5.27	$528,811,803	4.02

Income Account of All Companies Making Complete Returns.

	Total.
Gross earnings	$2,165,786,215
Operating expenses	1,629,171,411
Net earnings	$536,614,804
Interest	109,483,337
Balance	$427,131,467
Dividends reported	227,787,831
*Other deductions	54,570,981
Surplus	$144,772,655
Stock	4,924,774,780
Bonds	2,238,966,992
Total	$7,163,741,772

*May include dividends unreported.

Percentage of Earnings and Expenses.

	Light, water and power section.	Mining section.	Telephone and telegraph section.	Manufacturing and miscellaneous section.	Total.
P.c. gross to capital	15.27	32.79	25.50	37.51	30.23
" net to capital	6.84	9.35	9.34	7.32	7.49
" expenses to gross	55.20	71.49	63.34	80.48	75.22
" interest to bonds	4.88	5.07	5.24	4.81	4.88
" dividends to stock	3.99	5.29	5.67	4.63	4.62

Seniority of Telegraphers on the Pennsylvania.

The new telegraph regulations on the Pennsylvania Railroad make the following changes:

Supplementary to regulation No. 2: "All temporary and prolonged vacancies of six months or more duration will be bulletined in the same manner as new positions and permanent vacancies, and filled by the senior operator making application in writing."

Supplementary to regulation No. 5: "When an office is closed or reduction of force is made, seniority on the division entitles the employee affected to any position held by another whose seniority is less than his own; and the employee affected shall have his right, regardless of the rate of pay he formerly received or the rate of pay the position to which his senior rights entitle him. Such senior rights, however, shall not apply to offices where priority exists."

Contributions to the Burlington's "Conscience" Fund.

J. N. Redfern, superintendent of the relief department of the Chicago, Burlington & Quincy, this week received two letters from Galesburg, Ill., signed "W. H." enclosing, one of them $65, and the other $100, which the writer said he wrongfully drew out of the relief department on sick and accident cases, which did not come within the rules of the department. In the first letter, which contained the $65, he said that other instalments would follow at regular intervals. He repeated this statement on sending the second instalment and requested that receipt of the money should be announced in the Chicago morning papers so that he might know it had been received.

Telephone Despatching on the Santa Fe.

The Atchison, Topeka & Santa Fe is engaged in constructing telephone despatching circuits which, when completed, will put all of its main lines under telephone operation. The mileage of first circuits in service is 2,457.8, and the mileage of second circuits in service is 65.9, making a grand total of 2,523.7 miles. The mileage of first circuits under construction is 3,171.9 and the mileage of second circuits, 1,253 miles, making a grand total under construction of 4,424.4 miles, and a grand total of 6,948 miles of telephone miles will be in use when present installations are finished.

Track Inspection.

In making the 1909 inspection of track of the Cincinnati, New Orleans & Texas Pacific and the Alabama Great Southern, four committees were appointed, and for each committee the following ratios of relative value were assumed by which to multiply the figures showing average condition of track of a given section:

Committee No. 1—Line		20
	Surface	25— 45
Committee No. 2—Joints		15
	Spacing Ties	10— 25
Committee No. 3—Drainage, Ditches and Banks		15
	Policing	5— 20
Committee No. 4—Spiking		5
	Switches and Sidings	5— 10
Total		100

The best two sections on the Alabama Great Southern got ratings of 92.55 and 88.85, respectively, while the corresponding C. N. O. & T. P. figures were 91.21 and 90.55. The general average condition by divisions was 81.15 on the A. G. S. and 85.85 on the C. N O. & T. P.

Snow Sheds and Re-alinement on the Great Northern in the Cascades.

An officer of the Great Northern writes that so far as it is now known this company will build about one mile of new wood snow sheds on the Cascade Mountains. In addition to this there will be a change of line in the vicinity of Berne, Wash., the first station east of the Cascade tunnel, about 6,000 ft. long, which, in addition to very materially improving the alinement, will avoid some points where there have been bad snow slides in the past and save the expense of putting in snow sheds there. In addition to the foregoing there probably will be built about 3,000 ft. of concrete snow shedding near Wellington, where the recent catastrophe took place. The wooden sheds before mentioned are to protect places which in

the past have been entirely free of snow slides, or have only had slides which have been easily handled by the plows without seriously interfering with traffic.

Western Railway Club.

The annual meeting of the Western Railway Club was held at the Auditorium Hotel, Chicago, Monday evening, May 16. The secretary reported a membership of 1,516, and the treasurer a balance of cash on hand of $1,303. The following officers were elected for the ensuing year: President, J. F. De Voy, assistant superintendent of motive power, Chicago, Milwaukee & St. Paul; first vice-president, C. B. Young, mechanical engineer, Chicago, Burlington & Quincy; second vice-president, T. H. Goodnow, master car builder, Lake Shore & Michigan Southern; secretary and treasurer, J. W. Taylor; directors, H. La Rue, G. H. Bryant and W. B. Hall; trustees, D. L. Barnes, W. F. M. Goss, C. A. Seley and F. W. Sargent. The members were entertained by an illustrated lecture on Early Railroading and Other Things In and Around Chicago, by Frank L. Smith, cashier of the Corn Exchange National Bank, Chicago. The members presented Secretary Taylor with a new purse containing a large roll of new greenbacks in recognition of years of efficient service.

Transportation Club of Toledo.

The officers of this club for the ensuing year are: President, E. N. Kendell, commercial agent B. & O.; first vice-president, Thomas Conlon, New York Central lines; second vice-president, Walter Blank, American Can Co.; treasurer, E. L. Adams, Red Line Fast Freight; secretary, L. G. Macomber, Woolson Spice Company.

New York Railroad Club.

At the meeting to be held on Friday, May 20, a paper entitled "The Inequalities of Expansion in Locomotive Boilers and Possibility of Eliminating the Bad Effect Therefrom," by D. R. MacBain, assistant superintendent motive power, New York Central & Hudson River, will be presented and illustrated with lantern slides.

American Society of Civil Engineers.

At the meeting of May 18 a paper entitled "Pressure Resistance and Stability of Earth," by J. C. Meem, M. Am. Soc. C. E., was presented for discussion and illustrated with lantern slides. This paper was printed in the April number of the proceedings.

Chicago Railway Club.

At the annual election on May 14, Charles G. Hall, general advertising agent of the Chicago & North Western, was elected president. The other nominees mentioned in the *Railway Age Gazette* of April 29, page 1104, were also elected.

Brotherhood of Railway Station Employees.

At the convention of the Brotherhood of Railway Station Employees at Portland, Me., May 12, P. J. Doyle, of Boston, was elected president for the ensuing year; secretary, B. B. Small, Portland, Me.

American Society of Demurrage Officers.

By letter ballot, the time and meeting place of this association has been changed from Niagara Falls, Ont., June 7, to Omaha, Neb., June 17.

Argentine Centennial Exposition

The International Exhibition of Railways and Land Transport will be held at Buenos Aires, Argentine Republic, from May until November, 1910.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass.
AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Scranton, Pa.; June 17; Omaha, Neb.
AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—C. M. Burt, Boston, Mass.; next meeting, St. Paul, Minn.
AMERICAN ASSOC. OF LOCAL FREIGHT AGENTS' ASS'NS.—G. W. Dennison, Penna. Co., Toledo, Ohio.
AMERICAN ASS'N OF RAILROAD SUPERINTENDENTS.—O. G. Fetter, Carew Bldg., Cincinnati, Ohio; during first week in month.
AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 24 Park Place, New York.
AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago; Oct. 18; Fort Worth, Tex.
AMERICAN RAILWAY ENGINEERING AND MAINT. OF WAY ASSOC.—E. H. Fritch, Monadnock Bldg., Chicago.
AMERICAN RAILWAY INDUSTRIAL ASSOCIATION.—G. L. Stewart, St. L. S. W. Ry., St. Louis; second Tuesday, May; Memphis, Tenn.
AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, Old Colony Building, Chicago; June 20-22; Atlantic City.
AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—O. T. Harroun, Bloomington, Ill.; July 12; Chicago.
AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. Edgar Marburg, Univ. of Pa., Philadelphia; June 28-July 2; Atlantic City.
AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., N. Y.; 1st and 3d Wed., except July and August; New York.
AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 29th St., N. Y.; 2d Tues; N. Y.; May 31-June 3; Atlantic City.
AMERICAN STREET AND INTERURBAN RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York.
ASSOCIATION OF AM. RY. ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago; June 29, 1910; Colorado Springs.
ASSOCIATION OF RAILWAY CLAIM AGENTS.—E. H. Hemus, A., T. & S. F., Topeka, Kan.; May 25-27; Chattanooga, Tenn.
ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, Wis. Central Ry., Chicago; June 20-24, 1910; Los Angeles.;
ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 24 Park Pl., N. Y.; June 21-22; Colorado Springs.
BUFFALO TRANSPORTATION CLUB.—J. N. Sells, Buffalo.
CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 1st Tues. in month, except June, July and Aug.; Montreal.
CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, Montreal, Que.; Thursdays; Montreal.
CAR FOREMAN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month; Chicago.
CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Friday in January, March, May, Sept. and Nov.; Buffalo.
ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; June 1-4; Harrisburg.
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, 803 Fulton Building, Pittsburgh; 1st and 3d Tuesdays; Pittsburgh.
FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Rich., Fred. & Pot. R. R., Richmond, Va.; June 15, 1910; California.
GENERAL SUPERINTENDENTS' ASSOC. OF CHICAGO.—H. D. Judson, 209 Adams St., Chicago; Wednesday preceding 3d Thurs.; Chicago.
INTERNATIONAL MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., N. Y.; May 24-27; Niagara Falls, Ont.
INTERNATIONAL RAILWAY FUEL ASSOCIATION.—D. B. Sebastian, La Salle St. Station, Chicago; May 23-26; Chicago.
INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—L. H. Bryan, D. & I. R. Ry., Two Harbors, Minn.
INTERNATIONAL RAILWAY MASTER BLACKSMITHS' ASS'N.—A. L. Woodworth, Lima, Ohio; Aug. 16-18; Detroit, Mich.
INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, rue de Louvain, 11, Brussels; July 4-16; Berne, Switzerland.
IOWA RAILWAY CLUB.—W. B. Harrison, Union Station, Des Moines, Ia.; 2d Friday in month, except July and August; Des Moines.
MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Old Colony Bldg., Chicago; June 15-17; Atlantic City.
NEW ENGLAND RAILROAD CLUB.—G. H. Frazier, 10 Oliver St., Boston, Mass., 2d Tues. in month, ex. June, July, Aug. and Sept.; Boston.
NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August; New York.
NORTH-WEST RAILWAY CLUB.—T. W. Flanagan, Soo Line, Minn.; 1st Tues. after 2d Mon., ex. June, July, August; St. Paul and Minn.
NORTHERN RAILWAY CLUB.—C. L. Kennedy, C., M. & St. P., Duluth; 4th Saturday; Duluth, Minn.
OMAHA RAILWAY CLUB.—A. H. Christiansen, Barker Blk.; 2d Wed.
RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City; Third Friday in month; Kansas City.
RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, Pittsburgh, Pa.; 4th Friday in month, except June, July and August; Pittsburgh.
RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, 12 North Linden St., Bethlehem, Pa.; annual meeting October 11-13, Atlantic City.
RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C., Collinwood, Ohio.
RICHMOND RAILROAD CLUB.—F. O. Robinson; 2d Monday; Richmond.
ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—Walter E. Emery, P. & P. U. Ry., Peoria, Ill.
ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug.; St. Louis.
SOCIETY OF RY. FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Sta., Chicago.
SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. R. Ry., Montgomery, Ala.; annual, Oct. 20; Atlanta.
SOUTHERN & SOUTHWESTERN R.R. CLUB.—A. J. Merrill, Prudential Bldg., Atlanta; 3d Thurs., Jan., Mar., July, Sept. and Nov.; Atlanta.
TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August; New York.
TRAIN DESPATCHERS' ASSOC. OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago; June 21; Spokane, Wash.
TRANSPORTATION CLUB OF TOLEDO.—L. G. Macomber, Woolsen Spice Co., Toledo.
TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo; annual meeting, Aug. 16-19; Niagara Falls, Ont.
WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg; 2d Monday, except June, July and August; Winnipeg.
WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, Monadnock Bldg., Chicago; Wednesdays, except July and August; Chicago.

Traffic News.

Within the past ten days nearly every railway in Indiana has sent to the State Railroad Commission new freight tariffs, many of which show increases of 8 cents a ton or more in the rates on coal.

Beginning May 22 the Central of New Jersey, in connection with the Philadelphia & Reading, will run a through fast train each way between New York and Harrisburg by way of Allentown, 180 miles. The time through will be 4 hours 50 minutes.

The number of passengers carried in the subway trains of the Interborough Rapid Transit Co., New York City, in the ten months ending April 30 last, was 467,848,217, which is an increase of 42,168,105 over the number carried in the corresponding period of the preceding year.

The attorneys-general of various states are conferring at St. Paul, Minn., this week on the question whether state governments should take action on the complaint against the rates of express companies, which has recently been formulated by the Merchants' Association of New York City.—(See Washington letter).

Beginning May 22, the Black Diamond Express of the Lehigh Valley will be made up wholly of parlor cars, and the time between New York and Buffalo will be shortened 30 minutes. A new train, the Central New York Express, will be put on to take a part of the travel. The night train leaving New York at 8 o'clock will start an hour later and reach Buffalo at the same time as now.

The Canadian Pacific announces that beginning May 29 trains 1 and 2 will be run through between Montreal and the Pacific coast, making two through trains each way daily. During the winter these trains have not been run west of Calgary, and from Calgary to Revelstoke, 267 miles, there has been only one train a day each way. A new train is to be put on between St. Paul and Seattle via Calgary.

The Land and Industrial Department of the Southern Railway has just issued its annual directory of textile mills along the Southern and the Mobile & Ohio, a book of 32 pages. It gives the names and capacity of all mills on the lines, the character of output and the kind of power used. The textile mills number 758, and contain 188,723 looms and 8,277,866 spindles. At the beginning of this year there were under construction 17 new mills.

At a conference in New York City last week between representatives of the Trunk Line Association, the Central Freight Association and the New Orleans lines, an agreement was reached, it is said, on a basis for the readjustment of rates on sugar in carloads from the seaboard to western interior points, which have been unsettled since about a year ago, when the Illinois Central made a reduction of 4 cents per 100 lbs. from New Orleans.

Shippers Protest Against Advances in Freight Rates.

A meeting of shippers representing commercial organization in all parts of the country and especially in the middle west, was held in Chicago on May 17 to protest against advances in freight rates. The meeting was called to order by W. H. Burns, vice-president of the Illinois Manufacturers' Association, and was addressed by Mr. Burns, Congressman James McLachlan, of California; William D. Haynie, counsel of the Illinois Manufacturers' Association, and others. Mr. McLachlan advocated legislation for the establishment of a government steamship line from the west coast of Panama to San Francisco as a means of regulating freight rates. This was opposed by delegates who thought that this would be the first step toward general government ownership of transportation facilities. This brought on a discussion in which one delegate at great length, and to the evident annoyance of the leaders of the movement, vigorously advocated government ownership of railways. A permanent organization was formed by the election of J. E. Wilder, of Chicago, as chairman, and E. E. Williamson, of Cincinnati, as secretary.

A resolution was adopted demanding that the question of proposed advances in freight rates be arbitrated before the Interstate Commerce Commission, and a conference committee of seventeen was chosen to "carry on the fight." The committee includes C. C. Barber, Tiffin, Ohio; Andrew F. Wilson, New York; John Kirby, Jr., Dayton, Ohio; J. M. Bellville, Pittsburg; S. C. Meade, New York.

At a preliminary meeting on Monday delegates from 37 commercial organizations sent a long telegram to President McCrea, of the Pennsylvania. The message recalled Mr. McCrea's telegram of October 18, 1909, in which he said that no general increase in freight rates was under consideration. Attention was called to the fact that Francis Le Bau, freight traffic manager of the New York Central lines recently was quoted as saying that both class and commodity rates in eastern territory would be advanced. It was stated that this statement differed from that of Mr. McCrea, and he was asked to state explicitly his present views on the subject.

The Farmer, the Railway and the Middleman.

It is not prices received by farmers which make living expenses high, but the profits of the dealers handling the foods between the farmer and consumer.

The Florida farmer receives $2.25 for a bushel of green beans, the railway gets 50 cents for the 800 mile haul to New York and the consumer pays $6.40 for this same bushel of beans. There is 35 per cent. for the grower, 8 per cent. for the carrier and 57 per cent. for the dealer. This is not a fair division.

Thirty cents a dozen was the average price of eggs in New York last year, while the farmers of Arkansas and Missouri received 15 cents. The freight was two cents a dozen. The men who receive the eggs at a freight station in New York and deliver them to the consumer take 13 cents a dozen profit.

The rice farmer of Texas, Louisiana and Arkansas gets 2½ cents a pound for the grain and the consumer in New York pays 10 cents a pound for this rice. The freight is 1½ cents a pound. If the rice farmer were paid 3½ cents (one cent more than he is now getting) and the dealer took one cent profit, (which is 25 per cent.) the New York consumer would get 20 pounds of rice for a dollar, instead of 10 pounds as now. * * * The farmers and the railways have something to co-operate with and something to co-operate for. The products and supplies of the farms constitute 40 per cent. of the freight of the western railways. It is to our interest to work with you in bettering your marketing facilities, for the more prosperous you are the more business you have for us. In working out economies, the consumer is also benefited. First, let us eliminate the men who talk radical ideas to foster hatred and malice between the producer and transporter. Taking your products from your farms to the market and in aiding you to get the best prices are the ways in which we can profitably work together. We do not need any middle agent. We can talk straight at one another and save money by doing so. In short, let us work together.—From an address by B. F. Yoakum, chairman of the St. Louis & San Francisco, before the Farmers' Union at St. Louis.

Increases in New York City Commutation Fares.

The Erie Railroad announces that season ticket fares between New York City and suburban points are to be increased. The tariffs have not yet been made public, but the percentages of increase as given out, appear to be somewhat less than those recently announced by the New York, New Haven & Hartford. Reporters inquiring at the office of the Trunk Line Association learn that the Pennsylvania and the Central of New Jersey are intending to make similar increases.

President Ralph Peters, of the Long Island, replying to a committee of passengers, says that when the trains of his road run through to Seventh avenue, New York City, the season ticket fares will probably be made about $2 a month higher than the present rates to Long Island City. To the Long Island city rate, however, the passenger has to add about $1 a month for fares on the ferryboats.

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF MARCH, 1910.
(See also issues of May 6 and 13.)

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses					Net operating revenues (or deficit).	Outside operations. net.	Taxes.	Operating income (or loss).	Increase (or dec.) comp. with last year.
		Freight.	Passenger.	Total, inc. misc.	Maintenance Way and structures.	Maintenance Of equipment.	Traffic.	Transportation.	General.	Total.				
Alabama Great Southern	309	$257,704	$79,464	$370,769	$36,740	$66,974	$9,736	$120,657	$8,349	$242,456	$128,313	—$1,563	$11,522	$115,228	$26,781
Buffalo, Rochester & Pittsburgh	567	664,174	73,864	757,935	124,025	156,578	10,649	220,390	12,687	524,329	233,606	211	15,000	218,817	54,387
Central Vermont	411	237,753	62,281	329,075	28,575	48,492	6,990	148,269	6,655	238,981	90,094	369	10,116	80,347	10,960
Chicago & Alton	998	778,920	303,207	1,172,492	99,873	142,159	39,818	443,137	30,957	755,944	416,548	1,364	49,000	368,912	—2,904
Chicago & Eastern Illinois	965	1,010,748	149,401	1,223,060	119,773	198,568	20,705	422,283	31,405	792,734	430,326	—1,065	29,900	399,361	66,624
Chicago & Erie	269	389,547	59,310	485,944	36,126	102,699	16,992	213,062	7,798	376,677	109,267	.....	10,939	98,328	60,135
Chicago, Indiana & Southern	340	379,254	19,797	408,977	35,644	77,379	9,032	144,857	9,285	276,197	132,780	80	13,500	119,360	76,465
Chicago, Indianapolis & Louisville	615	384,769	114,534	542,856	67,971	76,366	16,730	197,235	17,409	375,711	167,146	.....	26,200	140,946	35,974
Chicago, Milwaukee & Puget Sound	1,466*	885,218	104,890	1,004,595	59,366	109,995	25,899	337,757	10,466	543,483	461,112	3,984	22,560	442,536	.....
Chicago, Milwaukee & St. Paul	7,511	4,269,558	1,122,584	5,793,837	434,236	521,831	84,098	2,361,793	94,762	3,496,720	2,297,117	5,727	216,041	2,086,804	170,884
Cincinnati, New Orleans & Texas Pac	337	623,433	131,639	793,924	63,991	136,906	21,165	219,766	18,603	460,431	333,493	612	20,000	314,105	80,473
Cleve., Cincinnati, Chicago & St. L.	1,982	1,901,355	566,386	2,690,818	307,164	430,268	76,457	1,036,838	54,083	1,904,810	786,008	—8,328	74,000	703,680	226,235
Elgin, Joliet & Eastern	781	817,538	6	881,458	69,241	167,098	4,468	291,448	12,070	544,325	337,133	.....	22,450	314,683	30,955
Florida East Coast	583	225,976	249,414	533,601	45,282	41,982	13,028	123,223	8,618	232,133	301,468	.....	15,234	286,234	2,636
Fort Worth & Denver City	454	275,564	122,349	417,774	43,238	56,642	5,787	129,714	14,911	250,292	167,482	—2,076	9,938	155,468	62,600
Galveston, Harrisburg & San Antonio	1,338	633,965	228,348	911,804	169,954	115,172	26,005	330,321	27,723	669,175	242,629	—782	28,800	213,047	83,157
Grand Rapids & Indiana	587	306,740	115,787	451,455	47,314	80,579	10,115	185,637	13,125	336,770	114,685	—326	23,674	90,685	11,446
Great Northern	7,129†	3,287,664	1,089,932	4,667,643	645,180	680,702	80,832	1,499,894	78,753	2,985,362	1,682,281	—12,668	211,919	1,457,694	13,538
Houston & Texas Central	789	276,518	104,149	415,682	62,714	58,797	15,724	200,356	21,550	359,141	56,541	.....	16,485	40,056	—28,177
International & Great Northern	1,159	537,207	152,075	731,189	129,075	150,053	19,583	328,267	23,048	650,026	81,163	.....	20,000	61,163	33,269
Iowa Central	558	272,823	44,833	328,926	25,545	46,028	7,360	141,113	10,258	230,304	98,622	.....	9,725	88,897	23,728
Lake Erie & Western	886	394,382	61,898	479,717	74,217	89,835	12,514	169,609	10,858	357,033	122,684	—4,213	17,950	104,734	78,424
Lake Shore & Michigan Southern	1,662‡	2,983,882	806,807	4,226,539	497,363	640,662	92,581	1,495,262	82,871	2,808,739	1,417,800	36,525	135,000	1,278,587	153,943
Long Island	390	275,071	377,773	679,555	95,679	112,907	11,287	339,828	17,494	577,195	102,360	—4,899	33,232	105,653	30,481
Michigan Central	1,746	1,798,186	522,699	2,572,946	281,203	346,575	62,164	980,408	49,378	853,218	853,218	—115	113,000	735,319	157,018
Minneapolis & St. Louis	1,027	295,182	91,810	414,427	33,518	46,041	10,601	168,069	12,804	271,033	143,394	42,622	16,943	126,336	10,089
New York Central & Hudson River	3,588	4,987,670	2,190,530	7,989,742	1,466,393	1,652,260	239,491	3,283,909	202,779	6,844,832	1,144,910	.....	364,451	823,081	—819,574
Peoria & Eastern	351	202,865	54,811	277,718	32,811	39,619	5,105	101,680	5,446	184,661	93,057	—572	9,200	83,857	30,076
Pittsburgh & Lake Erie	191	1,371,916	119,837	1,524,745	160,016	127,856	15,434	341,106	23,607	668,019	856,726	.....	27,200	828,954	471,650
Rutland	468	142,611	75,705	247,013	30,865	32,807	6,008	103,122	6,487	179,289	67,724	.....	9,072	58,652	17,680
Seaboard Air Line	2,995	1,436,095	419,245	2,035,274	261,897	263,351	64,402	617,807	45,931	1,253,388	781,883	—1,883	67,765	712,238	102,719
Texas & New Orleans	458	222,945	91,264	333,516	65,873	39,113	7,307	122,116	10,017	244,426	89,090	1,387	11,835	78,642	16,622
Toledo & Ohio Central	441	341,090	43,242	397,123	53,056	67,646	5,346	119,709	6,005	251,762	145,361	—3,864	14,971	126,526	75,855
Toledo, St. Louis & Western	451	265,747	31,757	316,479	36,651	44,051	7,898	107,647	8,855	205,102	111,377	.....	13,900	97,477	—5,381
West Jersey & Seashore	356	157,010	257,506	436,875	85,449	56,349	11,089	193,830	9,471	356,188	80,687	—6,621	20,037	54,029	36,434
Wheeling & Lake Erie	458	535,761	40,738	609,589	62,481	118,811	6,764	207,785	12,563	408,404	201,185	4,687	21,096	184,776	87,895
NINE MONTHS OF FISCAL YEAR, 1910.															
Alabama Great Southern	309	$2,038,853	$785,091	$3,094,957	$364,754	$687,148	$81,470	$915,762	$81,751	$2,130,885	$964,072	—$5,835	$101,982	$856,255	$160,454
Buffalo, Rochester & Pittsburgh	567	5,741,694	739,239	6,774,203	750,335	1,392,997	83,978	1,866,095	117,484	4,210,889	2,563,314	913	121,000	2,443,227	1,009,844
Central Vermont	411	1,846,852	783,339	2,833,045	318,370	514,291	76,737	1,178,572	65,054	2,153,024	680,021	6,818	91,050	595,789	197,372
Chicago & Alton	998	6,421,212	3,147,874	10,374,323	1,207,212	1,201,637	355,354	3,585,871	276,107	6,626,181	3,748,142	—10,815	322,000	3,415,327	—251,558
Chicago & Eastern Illinois	965	7,432,934	1,396,357	9,292,568	872,786	1,698,607	198,783	3,163,073	290,928	6,224,177	3,068,391	—12,110	272,424	2,783,857	559,695
Chicago & Erie	269	3,007,163	595,675	3,927,826	422,389	818,172	143,786	1,642,803	80,160	3,107,310	820,516	.....	98,446	722,070	370,188
Chicago, Indiana & Southern	340	2,636,366	199,581	2,899,648	378,739	506,686	77,273	977,067	74,322	2,014,087	885,561	246	115,003	770,804	360,901
Chicago, Indianapolis & Louisville	615	3,005,235	1,080,555	4,455,383	602,588	600,331	127,542	1,452,922	136,039	2,919,422	1,535,961	.....	192,100	1,343,861	399,568
Chicago, Milwaukee & Puget Sound	1,466*	6,141,545	634,231	6,903,801	332,870	492,901	181,634	2,225,060	92,377	3,324,842	3,578,959	23,779	167,681	3,435,057	.....
Chicago, Milwaukee & St. Paul	7,511	33,882,398	10,808,037	48,494,369	6,350,756	5,760,648	955,169	19,595,572	855,892	33,518,037	14,976,332	170,204	1,881,251	13,265,285	—1,875,763
Cincinnati, New Orleans & Texas Pac	337	5,186,129	1,179,722	6,699,961	730,656	1,251,625	176,612	1,825,887	161,241	4,146,021	2,553,940	—734	180,000	2,373,206	577,066
Cleve., Cincinnati, Chicago & St. L.	1,982	14,828,994	5,582,237	22,336,339	2,402,596	3,664,306	721,402	8,333,726	430,041	15,552,071	6,784,268	—57,272	656,328	6,070,668	1,622,695
Elgin, Joliet & Eastern	781	6,452,239	152	6,991,110	659,110	1,344,621	37,603	2,146,330	138,934	4,326,598	2,665,205	.....	136,450	2,528,755	880,080
Florida East Coast	583	1,105,018	1,001,503	2,416,720	326,380	359,463	51,282	800,471	75,230	1,612,826	803,894	.....	109,501	694,393	202,204
Fort Worth & Denver City	454	2,537,904	1,311,967	4,025,368	418,850	507,850	59,157	1,193,008	130,796	2,309,661	1,715,707	—4,385	76,334	1,634,989	409,053
Galveston, Harrisburg & San Antonio	1,338	5,681,375	1,944,185	8,025,155	1,108,387	1,142,273	229,919	2,934,479	245,116	5,660,174	2,364,981	—20,011	264,108	2,080,862	23,213
Grand Rapids & Indiana	587	2,336,714	1,271,096	3,859,058	455,544	621,677	96,784	1,536,811	120,208	2,830,975	1,028,083	—2,377	197,804	827,902	15,878
Great Northern	7,129†	34,300,987	10,637,594	47,502,310	7,068,883	5,562,501	673,893	13,328,177	735,695	27,369,149	20,133,161	227,405	2,613,323	17,747,243	3,003,768
Houston & Texas Central	789	3,094,372	1,085,691	4,481,438	574,007	507,749	155,423	1,747,347	177,331	3,161,857	1,319,581	.....	133,152	1,186,429	—55,185
International & Great Northern	1,159	4,721,125	1,469,938	6,598,259	1,091,296	1,089,520	174,478	2,723,983	193,060	5,272,337	1,325,922	.....	192,000	1,133,922	—66,720
Iowa Central	558	2,051,899	415,690	2,576,657	307,082	392,659	77,511	1,086,305	81,400	1,944,957	631,699	.....	69,152	562,547	139,771
Lake Erie & Western	886	3,346,876	643,012	4,201,309	547,062	734,924	114,783	1,466,785	93,695	2,957,249	1,244,060	—52,057	164,196	1,079,864	560,587
Lake Shore & Michigan Southern	1,662‡	24,440,416	8,120,609	36,577,430	4,204,202	5,397,166	860,052	11,630,657	577,845	22,669,922	13,907,508	609,970	1,113,905	12,741,546	2,257,893
Long Island	390	2,260,127	4,255,223	6,827,251	733,806	931,083	130,758	2,958,054	169,136	4,922,887	1,904,414	—32,962	299,092	2,215,293	610,598
Michigan Central	1,746	14,462,363	5,210,984	21,686,014	2,645,510	2,825,327	615,383	8,020,735	378,089	14,485,044	7,200,970	—641	880,532	6,287,476	1,307,416
Minneapolis & St. Louis	1,027	2,555,744	923,705	3,724,125	377,509	429,769	114,456	1,465,155	120,400	2,507,289	1,216,836	186,290	170,437	1,045,758	55,489
New York Central & Hudson River	3,588	42,877,916	22,156,785	72,396,121	9,415,690	12,185,554	1,858,415	26,387,497	1,621,207	51,468,363	20,927,758	.....	3,356,748	17,757,300	2,619,142
Peoria & Eastern	351	1,768,436	532,548	2,471,792	266,894	436,154	48,390	869,659	46,273	1,667,370	804,422	—3,410	79,394	725,028	204,991
Pittsburgh & Lake Erie	191	11,670,554	1,108,880	13,105,049	1,226,657	1,017,032	124,674	2,809,213	187,137	5,364,713	7,740,336	.....	181,837	7,555,089	3,238,623
Rutland	468	1,302,394	824,227	2,379,536	326,851	332,788	57,672	879,681	50,775	1,647,767	731,769	.....	88,098	643,671	128,183
Seaboard Air Line	2,995	10,331,275	3,249,545	14,967,204	2,039,103	2,032,673	522,674	4,706,361	449,570	9,750,381	5,216,823	—19,666	545,109	4,652,047	1,120,369
Texas & New Orleans	458	1,955,722	745,825	2,872,729	436,440	447,127	62,713	1,065,376	80,818	2,092,474	780,255	11,556	111,800	680,011	190,050
Toledo & Ohio Central	441	2,687,109	466,431	3,285,488	433,766	535,748	50,310	1,023,021	58,911	2,101,756	1,183,732	54,729	128,866	1,109,595	94,585
Toledo, St. Louis & Western	451	2,336,737	343,516	2,853,346	334,251	418,930	66,917	929,165	78,774	1,828,037	1,025,309	.....	111,800	913,509	69,883
West Jersey & Seashore	356	1,248,579	2,671,469	4,197,440	729,506	499,089	120,650	1,713,900	78,670	3,141,815	1,055,625	2,348	180,334	877,639	139,901
Wheeling & Lake Erie	458	4,456,708	432,479	5,242,605	520,183	1,134,422	62,989	1,794,883	123,847	3,636,324	1,606,281	76,847	199,426	1,483,702	568,354

*Began operations on Aug. 1, 1909. †Mileage operated on March 31, 1909, 6,960 miles. ‡Mileage operated on March 31, 1909, 1,511 miles. —Indicates Deficits, Losses and Decreases.

A Reduction to El Paso.

Under a new freight routing agreement between the El Paso & Southwestern and the Rock Island, the rate on freight from New York to El Paso has been cut practically to half of the former rate. About 45 El Paso merchants have agreed to use the new route and, instead of paying the all-rail rate of $1.84 (first class) from New York, they now get it at 90 cents, effecting a saving of 94 cents; and it is probable that the new rate will be extended to points in Arizona. The rate from New York to El Paso, by all-rail route is $1.84 (first class). The Southwestern and Rock Island roads now propose to have the freight shipped by the Texas Steamship Company to Texas City, a port eight miles north of Galveston. The steamship rate from New York to Texas City is only 25 cents (first class). It is proposed to send the freight from this point over the Trinity & Brazos to Fort Worth, from there to Tucumcari over the Rock Island and from Tucumcari to El Paso over the Southwestern. When the freight is taken from the steamers at Texas City, it is rebilled by a forwarding agent there, on the authority of merchants whose goods are to be handled, for which a charge of 1 cent per 100 lbs. is made by the transfer agent. The classification in Texas as established by the railway commission permits the making up of carload lots from Galveston or Texas City to El Paso by the mixing of freight.

The Texas Steamship Company has seven ships plying between New York and Texas City, with an eight-day run between port and port. If faster service is desired, the Morgan or the Mallory lines may be used, whose ships ply between New York and Galveston. The Morgan line ships make the run in five days and the company docks three ships a week at Galveston; the Mallory line ships make the run in six days and this company docks two boats a week at Galveston. The rate on the Morgan and Mallory lines, however, is 50 cents from New York to Galveston and the charge for handling and forwarding at Galveston is five cents per 100 lbs. making the rate over these lines from New York to El Paso $1.19, as against 90 cents if handled on the line of the Texas Steamship Company.—*El Paso Herald.*

Freight Car Balance and Performance.

Arthur Hale, chairman of the committee on relations between railways of the American Railway Association, in presenting statistical bulletin No. 70, covering car balance and performance for December, 1909, says:

"December was unusually severe on railway operation, and the effects are plainly reflected in the performance figures.

	Average miles per day.		Average ton-miles per car per day		Average earnings per car per day.	
	Inc. surp. cars.	Exc. surp. cars.	Inc. surp. cars.	Exc. surp. cars.	Inc. surp. cars.	Exc. surp. cars.
December, 1907	21.9	23.9	289	316	$1.98	$2.17
January, 1908.	20.8	24.9	277	325	1.81	2.17
February, 1908	19.7	23.8	271	328	1.82	2.20
March, 1908...	21.2	25.5	290	348	1.95	2.34
April, 1908 ...	19.6	24.5	258	324	1.83	2.29
May, 1908	19.3	24.8	254	329	1.72	2.22
June, 1908 ...	19.6	24.7	276	347	1.88	2.37
July, 1908 ...	20.0	24.8	275	342	1.84	2.26
August, 1908..	20.8	25.1	292	354	1.98	2.40
September, 1908	22.0	25.2	320	367	2.24	2.57
October, 1908..	23.8	25.9	346	376	2.33	2.54
November, 1908	23.5	25.8	341	375	2.32	2.55
December, 1908	22.3	25.2	332	376	2.16	2.45
January, 1909.	20.9	25.3	293	354	1.98	2.39
February, 1909.	21.7	25.9	306	365	2.04	2.43
March, 1909...	22.7	27.2	330	393	2.19	2.61
April, 1909 ...	22.4	26.8	310	371	2.13	2.54
May, 1909	22.5	26.8	304	362	2.05	2.45
June, 1909 ...	22.4	26.5	314	371	2.13	2.52
July, 1909	22.0	25.8	309	362	2.09	2.45
August, 1909..	23.2	26.3	340	384	2.29	2.59
September, 1909	24.3	25.9	367	391	2.50	2.67
October, 1909..	25.6	26.4	394	407	2.70	2.79
November, 1909	25.4	25.9	405	413	2.68	2.73
December, 1909	22.2	23.0	342	353	2.43	2.51

"There was a marked drop from the high record shown by all averages in November. The miles per car per day averaged 22.2, and with the elimination of the small number of idle cars (3.30 per cent. of the total), the active cars made 23.0 miles per day, the lowest average of which we have record. The loaded mileage continued to decrease, the average being 69.9 per cent. The loading per car averaged 22.2 tons which, while slightly below November, is higher than any previous figure. The ton miles per car per day and the

Car Balances and Performances in December, 1909.

	New England.	New York, New Jersey, Del., Md., Eastern Pa.	Ohio, Indiana, Mich., Western Pa.	Virginia, W. Va., No. and So. Carolina.	Ky., Tenn., Miss., Ala., Ga., Fla.	Iowa, Ill., Wis., Minnesota.	Montana, Wyo., Neb., Dakotas.	Kansas, Colo., Oklahoma, Mo., Ark.	Texas, Louisiana, N. Mex.	Oregon, Idaho, Nev., Cal., Arizona.	Canadian Lines.	Grand total.
Revenue freight cars owned	75,518	663,679	220,692	168,759	174,555	331,514	16,646	133,764	27,488	117,182	115,227	2,045,024
Average number of system cars on line	41,780	363,594	115,881	90,680	89,960	225,831	6,361	74,429	12,138	62,078	67,222	1,149,954
Railroad-owned cars: Av. foreign on line	40,860	270,553	88,994	58,688	62,617	143,988	16,200	63,361	28,081	55,426	26,603	855,371
Total cars on line	82,640	634,147	204,875	149,368	152,577	369,819	22,561	137,790	40,219	117,504	93,825	2,005,325
Excess	7,122	.....	.....	.....	.....	38,305	5,915	4,026	12,731	322	.....	.....
Per cent. cars on line to total owned:												
Home	55	55	53	54	51	68	38	56	44	53	58	56
Foreign	54	41	40	35	36	44	98	47	102	47	23	42
All railroads	109	96	93	89	87	112	136	103	146	100	81	98
Private cars on line	3,174	42,192	10,832	3,218	7,103	16,618	2,168	7,775	2,374	8,580	3,308	107,342
Total, all cars on line	85,814	676,339	215,707	152,586	159,680	386,437	24,729	145,565	42,593	126,085	97,133	2,112,667
Per cent. of cars in shop	3.87	5.12	6.32	5.59	8.46	4.21	3.90	9.71	5.55	4.83	6.56	5.58
No. of freight engines owned	1,167	9,941	2,873	2,991	2,593	5,422	462	2,547	756	2,359	2,102	33,213
Av. cars on line per freight engine owned	74	68	75	51	60	71	54	57	56	53	46	64
Total freight-car mileage	42,922,046	496,517,427	137,509,487	116,970,682	115,052,444	206,981,121	22,102,592	86,286,303	32,184,540	106,519,749	84,424,620	1,447,471,011
Average miles per car per day	16.1	23.7	20.6	24.7	23.8	17.4	28.8	20.0	24.4	27.3	28.0	22.2
Per cent. loaded mileage	72.6	66.9	72.6	67.0	74.1	73.0	77.8	69.2	67.1	69.5	75.8	69.9
Ton-miles of freight, inc. Co. freight	466,920,555	8,208,039,003	2,009,985,165	1,789,874,907	1,713,952,409	2,132,494,988	335,362,343	1,275,750,790	366,250,902	1,563,225,164	1,271,909,187	21,153,764,413
Average ton-miles, including Co. freight:												
Per car-mile	10.9	16.5	16.6	15.3	15.0	14.4	16.7	14.8	11.9	15.1	15.1	15.5
Per loaded car-mile	15.0	24.7	22.9	22.8	18.6	19.9	21.4	21.5	17.9	21.8	20.0	22.2
Per car per day	176	392	357	378	361	212	509	296	296	413	426	342
Gross freight earnings	$5,375,866	$47,312,440	$12,410,326	$18,976,141	$11,532,262	$17,770,646	$2,913,229	$10,682,686	$3,575,315	$14,298,883	$7,938,500	$153,051,190
Average daily earnings: Per car owned	$2.30	$2.32	$1.93	$3.63	$2.15	$2.08	$5.28	$2.58	$4.20	$3.39	$2.22	$2.48
Per railroad-owned car on line	2.10	2.42	2.08	4.10	2.46	1.84	4.28	2.50	2.87	3.98	2.13	2.52
All cars on line	2.02	2.27	1.97	4.01	2.40	1.75	3.90	2.37	2.71	3.70	2.64	2.43

average daily earnings of all cars on line both show a decrease, the former from 405 to 342 and the latter from $2.68 to $2.43.

"The shop percentage shows a further reduction to 5.58 per cent., probably reflecting the results of the retirement of worn out equipment during the preceding 18 months."

Unlimited Freight Room in Regular Steamers.

The decision of the Cunard Line to go in for more of the biggest ships is in line with recent developments in the shipping trade. While all steamers going to Europe are this spring crowded to their fullest capacity, and the fastest ships will always be patronized by those to whom speed is essential, the really popular ocean steamer is the large one of 18 to 20 knots speed—comfortable and stable at sea. The new leviathan of the Cunard Company is to be of this type, and will not be a competitor in speed with the Lusitania and Mauretania. This compromise type of boat, with its great cargo capacity and its comparatively great speed, is driving from the North Atlantic the tramp steamer, which in turn, superseded the sailing vessel. A few years ago the 10 to 12-knot tramp running backward and forward across the North Atlantic was a familiar phenomenon. Of late, the British shipyards have been filled with idle vessels of this character; even since the revival of business in the ocean carrying trade the trend is toward other quarters of the globe rather than across the North Atlantic. The lower rates of the tramp are being successfully met by the big eight-day cargo steamers, with their greater regularity and their additional income derived from large numbers of cabin passengers.—*Evening Post, New York.*

INTERSTATE COMMERCE COMMISSION.

Back Haul Charged For.

Charles R. Lull & Co. v. Minneapolis, St. Paul & Sault Ste. Marie. Opinion by Chairman Knapp.

The complainant made a shipment from Minneapolis, Minn., to Amherst, Wis., which on arrival the consignee refused to accept. On instructions from the complainant the shipment was sent back to Marshfield, Wis., and a charge was made for each haul. The complainant asked that a charge for one haul only be made, but it is held that the transportation from Amherst to Marshfield was a back haul and not a reconsignment privilege. (18 I. C. C., 355.)

No Misrouting of Shipment.

Gamble-Robinson Commission Co. v. Chicago, Burlington & Quincy et al. Opinion by Chairman Knapp.

Complaint dismissed. (18 I. C. C., 357.)

Complaint Dismissed.

George Henley et al. v. Chicago, Milwaukee & St. Paul et al. Opinion by Commissioner Clark.

Complaint involves one intrastate shipment and one shipment barred by the Statute of Limitations. (18 I. C. C., 382.)

Rate on Yellow Pine Lumber Reduced.

C. E. Ferguson Saw Mill Co. v. St. Louis, Iron Mountain & Southern et al. Opinion by Chairman Knapp.

Rate on cypress and yellow pine lumber from Woodson, Ark., and Little Rock to Memphis, Tenn., reduced from 14 cents per 100 lbs. to 10 cents. (18 I. C. C., 391.)

C. E. Ferguson Saw Mill Co. v. St. Louis, Iron Mountain & Southern. Opinion by Chairman Knapp.

Little Rock, Ark., and Woodson should be accorded the same rates to points in Oklahoma, Kansas and Missouri as are given to points in the zone extending from Memphis, Tenn., to Wynne, Ark. (18 I. C. C., 396.)

Relation of Rates on Plaster and Plaster Board.

Sackett Plaster Board Co. v. Buffalo, Rochester & Pittsburgh et al. Opinion by Commissioner Clements.

The commission finds that the present relation complained of by which plaster board takes a much higher rate per ton than plaster resulted in unjust discrimination, and the defendants are ordered to reduce the difference between the rates on the two commodities. (18 I. C. C., 374.)

Limitation Clause.

Acme Cement Plaster Co. v. St. Louis & San Francisco et al. Opinion by Commissioner Prouty.

The limitation clause in the Act to Regulate Commerce continues to run against a claim involving reparation for an excessive rate between two points when an informal complaint in regard to an intermediate switching charge had been made, since the informal complaint nowhere attacks the rate. (18 I. C. C., 376.)

Agent's Misstatement Causes Higher Rate.

Ohio Iron & Metal Co. v. Wabash Railroad et al. Opinion by Commissioner Cockrell.

An erroneous statement of the defendant's agent resulting in a shipment moving over the lines of the defendant at a higher rate than that in force via another route does not entitle the complainant to reparation. (18 I. C. C., 299.)

Complainant Not Damaged.

Consumers Ice Co. et al v. Atchison, Topeka & Santa Fe. Opinion by Commissioner Clark.

Reparation is sought because the rate on slack coal was for a time higher to El Paso than to a nearby point intermediate between El Paso and point of shipment of coal. This discrimination did not result in damage to complainant, and since the rate was not unreasonable *per se*, the complaint is dismissed. (18 I. C. C., 277.)

Loading and Unloading Rules Found Unreasonable.

Schultz-Hansen Co. v. Southern Pacific et al. Opinion by Commissioner Clark.

Complaint says that the Southern Pacific rules for loading and unloading carload freight are unreasonable, and the commission holds that these rules do not conform to the requirements of the law. It is usual for shippers to load and receivers to unload carload freight, but at places where competition has demanded it, carriers perform this service, but the commission requires this fact to be shown in the published tariffs and all terminal charges must be shown. The present tariffs of the defendant provide that the railway employees may unload or load carload shipments or may refrain from doing so. Such a provision is not a proper one. The carrier must have the right, after consignee's free time has expired, to unload and release its equipment, and where defendant's rules provide for loading and unloading without charge carload shipments of specified commodities at specified points where peculiar conditions obtain, they are not a discrimination, and it is only where the loading or unloading is left to the judgment of the carrier that such a provision becomes a discrimination. (18 I. C. C., 234.)

Rates on Coal to Georgia and Florida Territory.

Andy's Ridge Coal Co. et al. v. Southern Railway et al. Opinion by Commissioner Prouty.

The relative rates on coal from the Coal Creek field in Tennessee and from the Apalachia field in Virginia are considered. The complainants say that the rates made by the

Southern Railway from the Apalachia field are a discrimination against the Coal Creek field. For various reasons the cost of producing steam coal in the Apalachia field is from 25 to 35 cents per ton less than the cost of producing steam coal in the Coal Creek field. The two coals are about the same quality and sell for about the same price. Rates to three different markets for consumption are involved: First, Nashville, Tenn.; second, Carolina territory; third, Georgia and Florida territory. The rate of the Southern Railway from Coal Creek to Nashville is $1.25, and the rate from Apalachia is $1.45. The distance from the Apalachia field is 431 miles and from the Coal Creek field 208 miles, of which 200 miles is over the same route as is taken by coal from the Apalachia field. The Southern Railway rate from Apalachia is controlled by competition with the Louisville & Nashville. The commission holds that there should be a difference of at least 45 cents between the Apalachia rate and the Coal Creek rate, but since the Coal Creek-Nashville movement is an intrastate one, no order can be made.

The rates into Carolina territory are not found unreasonable.

The present differential between Coal Creek and the Apalachia fields and Atlanta, Ga., through which coal passes to Georgia and Florida points, is somewhat too small, and the difference between the rate from the Apalachia field and the Coal Creek ought not to be less than 35 cents. (18 I. C. C., 405.)

Reparation Denied.

Townley Metal & Hardware Co. v. Chicago, Rock Island & Pacific. Opinion by Commissioner Prouty.

A shipment moving under a joint rate was not given a reconsignment privilege which was contained in a local tariff of the delivering carrier. The commission upholds this action of the defendant. (18 I. C. C., 378.)

A. Coors v. Southern Pacific et al. Opinion by Chairman Knapp.

C. A. Lammers Bottling Co. v. Baltimore & Ohio et al. Opinion by Chairman Knapp.

Rate on bottle caps from Baltimore, Md., to Denver, Colo., not found unreasonable. (18 I. C. C., 352 and 354.)

White Brothers v. Southern Pacific et al. and four other cases. Opinion by Commissioner Clements.

The questions raised are the same as those considered in White Brothers v. A., T. & S. F., 17 I. C. C., 288, and there is not sufficient evidence to show that through rates from points east of the Mississippi river to San Francisco on hardwood lumber were unreasonable. (18 I. C. C., 308.)

Kentucky Wagon Manufacturing Co. v. Illinois Central et al. Milburn Wagon Co. v. Toledo, St. Louis & Western et al. Opinion by Commissioner Clark.

A rate which was fixed unusually low because of water competition was raised temporarily, but was later forced down again by the water competition. Since the higher rate was not unreasonable in itself, no reparation for shipments moving under that rate can be made. (18 I. C. C., 360.)

Reparation Awarded.

National Refining Co. v. Atchison, Topeka & Santa Fe. Opinion by Commissioner Lane.

Shipments of petroleum from Coffeyville, Kan., to Enid, Okla. (18 I. C. C., 389.)

Colorado Bedding Co. v. Chicago, Burlington & Quincy et al. Opinion by Commissioner Cockrell.

Shipment of compressed cotton from St. Louis, Mo., to Pueblo, Colo. (18 I. C. C., 409.)

Fred. G. Clark Co. v. Buffalo & Susquehanna. Opinion by Commissioner Clark.

Rate on oil in tank cars from Stanards, N. Y., to Struthers, Pa., found to be unreasonable. (18 I. C. C., 380.)

Chatfield Manufacturing Co. v. Louisville & Nashville et al. Opinion by Commissioner Clements.

Rate on roofing paper and materials from Carthage, Ohio, to Nashville, Tenn., unreasonable. (18 I. C. C., 385.)

Ocheltree Grain Co. v. Texas & Pacific et al. Opinion by Commissioner Harlan.

On a carload of corn shipped from Ninnekah, Okla., to Lettsworth, La. (18 I. C. C., 412.)

Tioga Coal Co. v. Chicago, Rock Island & Pacific et al. Opinion by Commissioner Lane.

Demurrage charges collected on one box-car loader shipped from Ottumwa, Iowa, to Tioga, Colo., were without warrant of tariff authority. (18 I. C. C., 414.)

Willamette Pulp & Paper Co. v. Northern Pacific et al. Opinion by Commissioner Lane.

A rate of 80 cents per 100 lbs. on print paper from Sartells, Minn., to Los Angeles, Cal., Oakland and San Francisco found unreasonable, and the rate should not have exceeded 75 cents. (18 I. C. C., 388.)

Zang Brewing Co. v. Chicago, Burlington & Quincy et al. Opinion by Commissioner Cockrell.

Wooden bungs L. C. L. should have taken the fourth class rate of 92 cents per 100 lbs. instead of the second class rate of $1.45 per 100 lbs. Charges on a mixed carload shipment also found unreasonable. (18 I. C. C., 337.)

A. S. Block & Co. v. Louisville & Nashville. Opinion by Commissioner Lane.

Carload rates on strawberries from Pomona, Tenn., and from Humboldt to St. Louis are the same, and 308 crates of strawberries were shipped from Pomona, stopping en route at Humboldt, where 217 additional crates were placed in the car. Since the carload rates are the same, the rate that should have been charged by the carrier was the carload rate from Humboldt. (18 I. C. C., 372.)

National Manufacturing Co. v. Chicago Great Western et al. Opinion by Commissioner Lane.

An agent of the initial carrier quoted a certain rate on a shipment through a mistake, and after the shipment had started tried to divert the shipment so that it would move over a route on which the quoted rate applied. The request was made in time, but for some reason the routing was not changed, and the question as to liability is raised. Notwithstanding the fact that the Chicago Great Western—the initial carrier—was negligent, yet the other lines engaged in the movement should have had reasonable rates, and since the rate that they had at that time was unreasonable, they are held liable for the reparation. (18 I. C. C., 370.)

Elevation in Transit Question Discussed.

H. Gund & Co. v. Chicago, Burlington & Quincy. Opinion by Commissioner Lane.

Complainant asks reparation, on all grain passing through its elevators in the state of Nebraska which was shipped through Missouri river points to eastern destinations, on the ground that an allowance for elevation in transit was made by the defendant to complainant's competitor at Nebraska City, a Missouri river point. The question of elevation allowance has been discussed before by the commission, and the commission knows from special investigation that this allowance is unduly discriminatory and serves to strengthen dealers in grain who receive it as against competitors at other points on the same railway who do not receive it. The orders of the commission in the matter of Allowance to Elevators, 14 I. C. C., 315; Traffic Bureau Merchants Exchange of St. Louis v. Chicago, Burlington & Quincy, 14 I. C. C., 317, 331, 510, have been suspended by the United States circuit court on the ground that the findings of fact by the commission were mistaken. While the commission recognizes that on questions of law the commission should yield to the courts, it is also understood by the commission from repeated decisions of the supreme court that the courts are not competent to determine questions of fact within the jurisdiction of the commission. With all due respect to the circuit court, the commission is constrained by the facts to adhere to its view that these allowances are unduly preferential, and therefore declines at this time, and until its position shall have been finally ruled on by the higher courts, to extend the benefit of this system of elevator allowance to complainant's elevators. (18 I. C. C., 364.)

STATE COMMISSIONS.

The State Railroad Commission of Texas has authorized the Texas & Pacific to make a stopping-in-transit rate of $5 per car on pine lumber, ties, telegraph poles, etc., for creosoting and cutting into paving blocks.

The State Railroad Commission of Texas has ordered that all roads in the state sell tickets for parties of 14 or more passengers at 1½ cents a mile. This rate has been granted heretofore to baseball teams, and the present order has been issued for the reason, it is said, that there has been discrimination in the granting of the reduced rate.

The Indiana Railway Commission has denied the petition of the Grand Rapids & Indiana for exemption from its recent order directing the installation of block signals. The road claimed that the money required for the installation of signals could be expended in other ways that would benefit the public more. The commission held, however, that it was unable to concede that where, as on parts of the G. R. & I., there is a movement of 20 to 30 trains a day at certain seasons of the year operation can be conducted safely without block signals. It was shown that accidents had been very infrequent on this road, but in reply to this the commission says: "Accidents do not occur in the normal and ordinary course of business and transportation; safety appliances are not made, as a rule, to protect from daily accidents. The accident is the extraordinary and unlooked for and unexpected event, and it is for this very thing that block signals were provided, so that the unexpected and unlooked for may not happen."

Louisiana: Passenger Train Ordered on Logging Road.

Railroad Commission of Louisiana v. The Kentwood & Eastern.

The Kentwood & Eastern operates a narrow gage road, running from Kentwood, La., to Hackley, the eastern terminus being in the forest, about ten miles from Hackley, and also a branch from Kentwood to Bolivar. Its main line, including the line to Bolivar, is 44 miles long.

At present the passenger service furnished by the company consists of a mixed train, leaving Kentwood daily, except Sunday, at 11 a.m., and arriving at Hackley at 1:20 p.m.; leaving Hackley at 2:05 p.m., and arriving at Kentwood at 5 p.m. Passengers are also carried on logging trains between certain points only. While the trains are presumed to run on their schedule time, as a matter of fact, they are seldom, if ever, on time, the trip from Hackley to Kentwood, a distance of 31 miles, frequently takes five hours.

The Kentwood & Eastern Railway is chartered to carry both freight and passengers. It has a contract with the American Express Company and with the United States Government for the transportation of mails. Its freight and passenger earnings (gross) for the year ended June 30, 1909, were $172,942, and its operating expenses were $121,535, leaving a net income for the year $51,407. After deducting interest, rents for lease of a portion of its line, and taxes, there remains a surplus for the year of $24,479, which, added to the surplus of previous years, makes the total surplus on June 30, 1909, of $44,003. It appears, therefore, that the company is making a fair profit.

Where any railway line or system, as a whole, is making a fair return on its investment, the commission will not decline an order requiring reasonable improvements to be made in any branch of the service, which is shown to be inadequate, unsuitable or insufficient to meet the just demands of the public.

The Kentwood & Eastern is therefore required, beginning not later than May 10, 1910, to operate a passenger train, each way, daily. The train to leave Hackley not later than 8 a.m., and to arrive at Kentwood not later than 10:15 a.m., and, returning, to leave Kentwood at 1 p.m., and arrive at Warnertown in time to make connection with the southbound afternoon train on the New Orleans Great Northern. Not later than June 10, 1910, the company is required to provide first-class passenger coaches and combination baggage cars and coaches for the train.

Railway Officers.

ELECTIONS AND APPOINTMENTS.

Executive, Financial and Legal Officers.

H. W. Seaman has been elected president of the Manistee & Grand Rapids, succeeding W. M. Simpson.

W. H. Beardsley, treasurer of the Florida East Coast, at New York, has been elected a vice-president, with office at New York.

W. W. Vincent has been appointed auditor of disbursements of the Chicago Great Western, with office at Chicago, succeeding R. H. Scott, resigned.

The title of E. W. Sprague, district claim agent of the Illinois Central and the Indianapolis Southern, with office in Chicago, has been changed to assistant chief claim agent. His office and jurisdiction remain unchanged.

Le Roy Kramer, assistant to the vice-president of the Chicago, Rock Island & Pacific, has been appointed assistant to the second vice-president, succeeding A. C. Ridgeway, whose promotion has been announced in these columns.

Henry Belin Voorhees, who was appointed an assistant to President Daniel Willard, of the Baltimore & Ohio, as previously announced in these columns, was born at Saratoga Springs, N. Y., on January 22, 1876, and graduated from Rensselaer Polytechnic Institute, Troy, N. Y., as a civil engineer in 1896. He began railway work on March 1, 1897, as assistant supervisor of the Shamokin division of the Philadelphia & Reading at Tamaqua, Pa., remaining with that company for nearly five years. During this period he was consecutively supervisor, assistant trainmaster and trainmaster. In December, 1901, he went to the Baltimore & Ohio as assistant engineer at Pittsburgh, and in July of the following year was made division engineer at Baltimore. A year later he was promoted to assistant to general superintendent of transportation, with office at Baltimore, and on February 1, 1905, was appointed superintendent and general agent of the Philadelphia division at Philadelphia, which position he held at the time of his recent appointment.

Henry B. Voorhees.

Operating Officers.

J. L. Hurd has been appointed car accountant of the Northern Pacific at St. Paul, Minn.

L. W. Armstrong has been appointed general manager of the Savannah, Augusta & Northern, with office at Statesboro, Ga.

H. D. Hathaway, chief clerk to the general manager of the Buffalo & Susquehanna at Buffalo, N. Y., has been appointed general superintendent of the Buffalo, Attica & Arcade, with office at Arcade, N. Y.

A. Igo, who has been on leave of absence, has resumed his duties as assistant superintendent of the Oregon Short Line at Pocatello, Idaho, and G. H. Collier, acting assistant superintendent, has resumed his duties as train despatcher.

G. A. Brown has been appointed superintendent of car service of the Chicago Great Western, with office at the Grand

Central Station, Chicago. C. J. Fellows, car service agent at Chicago, has resigned and the position has been abolished.

The operating department of the Illinois Central, the Indianapolis Southern and the Yazoo & Mississippi Valley will in the future have jurisdiction over the dining service department, and the superintendent in charge of that department will report to the vice-president.

J. M. Rapelje, superintendent of the Northern Pacific, at Missoula, Mont., has been appointed superintendent of the Idaho division, with office at Spokane, Wash., succeeding A. Beamer, resigned, effective May 12. M. M. Fowler, acting superintendent of the Rocky Mountain division, has been appointed superintendent, with office at Missoula, Mont.

I. B. Richards, superintendent of transportation of the Northern Pacific at St. Paul, Minn., has been made general superintendent of lines west of Paradise, Mont., with office at Tacoma, Wash., succeeding B. E. Palmer, resigned. P. H. McCauley, car accountant at St. Paul, succeeds Mr. Richards, and L. J. Baird, chief clerk to the car accountant, succeeds Mr. McCauley.

Traffic Officers.

W. C. MacRae has been appointed a contracting agent of the Central of Georgia, with office at New York City.

M. J. Allen has been appointed a commercial freight agent of the Continental Line (fast freight), with office at Kansas City, Mo.

R. D. Crocker has been appointed a traveling freight agent of the Southern Railway, with office at Dallas, Tex., succeeding W. T. Rembert, resigned.

J. R. Mockbee, traveling freight agent of the St. Louis Southwestern at Waco, Tex., has been appointed freight agent at Greenville, Tex. Lane Satterwhite, assistant freight agent at Waco, succeeds Mr. Mockbee.

The office of Stephen Y. Baldwin, recently appointed general agent, freight department of the Delaware & Hudson, is at Pittsburgh, Pa., and not at Albany, N. Y., as erroneously reported in our issue of May 13, page 1233.

W. D. Carrick, general baggage agent of the Chicago, Milwaukee & St. Paul and the Chicago, Milwaukee & Puget Sound, has been appointed general baggage agent also of the Tacoma Eastern, with office at Milwaukee, Wis.

E. J. West has been appointed a traveling freight agent of the Cincinnati, New Orleans & Texas Pacific and the Alabama Great Southern at Atlanta, Ga., succeeding J. L. Martin, whose resignation has been announced in these columns.

Engineering and Rolling Stock Officers.

N. S. Kimball, district master mechanic of the Chicago, Milwaukee & St. Paul at Greenbay, Wis., is to be retired on account of old age.

J. D. Maupin, general foreman of the Trinity & Brazos Valley at Teague, Tex., has been appointed master mechanic. L. M. Jacobs succeeds Mr. Maupin.

J. T. Carroll, master mechanic of the Lake Erie & Western at Tipton, Ind., has been appointed superintendent of motive power of the Baltimore & Ohio, with office at Pittsburgh, Pa.

D. R. MacBain, assistant superintendent of motive power of the New York Central & Hudson River at Albany, N. Y., has been appointed superintendent of motive power of the Lake Shore & Michigan Southern, with office at Cleveland, Ohio, succeeding Le Grand Parish, whose resignation has been announced in these columns.

James S. Sheafe has been appointed engineer of tests of the Illinois Central, the Indianapolis Southern and the Yazoo & Mississippi Valley, with headquarters at the Burnside shops, Chicago, reporting to the general superintendent of motive power. The test department will make inspections and tests not only for the mechanical and supply departments, but also for other departments of the road needing its services.

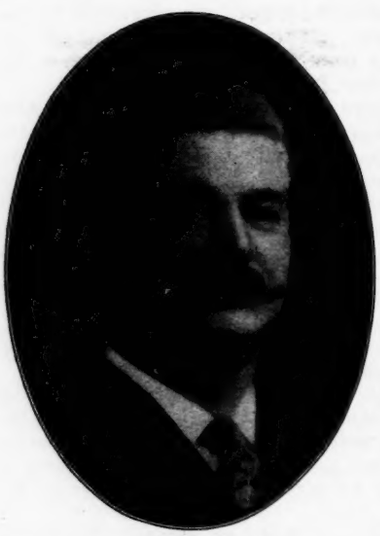
F. H. Reagan, assistant superintendent of the Collinwood shops of the Lake Shore & Michigan Southern at Collinwood, Ohio, has been appointed a master mechanic of the Lake Erie & Western, with office at Tipton, Ind., succeeding J. T. Carroll, resigned to go to another company. B. F. Kuhn, general foreman, locomotive shops, at Collinwood, succeeds Mr. Reagan, and B. H. Montgomery, assistant general foreman at the Collinwood shops, succeeds Mr. Kuhn.

R. B. Kendig, mechanical engineer of the Lake Shore & Michigan Southern at Cleveland, Ohio, has been appointed general mechanical engineer of the New York Central Lines, with office at New York, effective June 1, succeeding F. M. Whyte, whose resignation has been announced in these columns. A. R. Ayers, assistant master mechanic of the Lake Shore & Michigan Southern at Elkhart, Ind., succeeds Mr. Kendig; T. H. Goodnow, master car builder at Englewood, Ill., succeeds Mr. Ayers; J. W. Senger, supervisor of materials and coal, at Cleveland, succeeds Mr. Goodnow, and H. G. Griffin, general shop inspector, succeeds Mr. Senger.

Lawrence A. Downs, whose appointment as assistant engineer maintenance of way of the Illinois Central, the Yazoo & Mississippi Valley and the Indianapolis Southern has been announced in these columns, was born in Greencastle, Ind., May 9, 1872. He graduated from Purdue University in 1894, and entered railway service the same year on the Vandalia. He went to the Illinois Central in 1896, and has served that road continuously in the positions of assistant engineer in maintenance and construction, roadmaster on five different divisions, and assistant to chief engineer maintenance of way, which position he leaves to become assistant engineer maintenance of way of the three companies.

Lawrence A. Downs.

James F. Walsh, whose appointment as general superintendent of motive power of the Chesapeake & Ohio Railway, with office at Richmond, Va., has been announced in these columns, was born in March, 1857, at Cleveland, Ohio. Mr. Walsh began railway work in September, 1871, on the Cleveland, Columbus, Cincinnati & Indianapolis, now a part of the Cleveland, Cincinnati, Chicago & St. Louis. From his beginning in 1871 down to 1892, he was consecutively apprentice, locomotive fireman, locomotive engineer and shop foreman. He left railway work in 1892 to become the mechanical expert for the Galena Oil Co., and ten years later he returned to railway work as superintendent of motive power on the Chesapeake & Ohio at Richmond, which position he held at the time of his recent appointment as general superintendent of motive power.



James F. Walsh.

Purchasing Officers.

William A. Summerhays, assistant general storekeeper of the Illinois Central at Chicago, has been appointed general

storekeeper of that company, the Indianapolis Southern and the Yazoo & Mississippi Valley, with office at Chicago, succeeding John M. Taylor, resigned.

F. D. Reed, general storekeeper of the Chicago, Rock Island & Pacific at Silvis, Ill., has been appointed assistant to the vice-president, succeeding LeRoy Kramer, whose promotion has been announced in these columns. D. Kavanaugh, district storekeeper at Silvis, succeeds Mr. Reed; J. C. Kirk, district storekeeper at Shawnee, Okla., succeeds Mr. Kavanaugh, and C. H. Rost, storekeeper of the Chicago & Eastern Illinois at Danville, Ill., succeeds Mr. Kirk.

Special Officers.

F. H. Lotterhos has been appointed land and industrial commissioner of the Liberty-White, succeeding H. B. Myers, assigned to other duties.

OBITUARY.

James Hedley, at one time superintendent of the York & North Midland Railway of England, died on May 15 in New York City at the age of 87 years. Mr. Hedley was born at Northumberland, England, and was the father of Frank Hedley, vice-president and general manager of the Interborough Rapid Transit Co., New York, and E. M. Hedley, of the Galena Signal Oil Co., Franklin, Pa. Mr. Hedley's ancestors have been connected with railway operation in England since the days of the "Rocket."

Max Riebenack, comptroller of the Pennsylvania Railroad, died at Atlantic City, N. J., on May 14. Mr. Riebenack was born October 12, 1844, and entered the service of the Pennsylvania Railroad on October 19, 1863, as a clerk in the military transportation office at Altoona, Pa. The following year he was transferred to Philadelphia in the same position, and was later made corresponding clerk and cashier to the general passenger and ticket agent. In 1869 he was made chief clerk of foreign tickets and in April, 1872, he was appointed assistant auditor of passenger receipts. He was promoted to auditor of passenger receipts in April, 1880. In October of the following year he was made assistant comptroller in addition to his former position of auditor of passenger receipts. On account of Mr. Riebenack's important duties, in November, 1899, the board relieved him from the direct responsibilities of the position of auditor of passenger receipts, and since February 1, 1905, he has been comptroller. This position he held at the time of his death. Mr. Riebenack was a member of the advisory committee of the Relief Department and was also a member of the building committee in connection with the Broad Street station, Philadelphia, the duties of this committee being to locate and furnish the rooms in that building to accommodate the general officers and other clerks.

Max Riebenack.

Mr. Riebenack was one of the best known railway accounting officers in the country, having been a prominent member of the accounting officers' association. He had also appeared before various scientific bodies. In connection with his work in the relief and pension departments he gathered information on the subject from all over the world, and the reports which he made for the International Railway Congress were published in a book, "Railway Provident Institutions," in 1905.

Railway Construction.

New Incorporations, Surveys, Etc.

ABILENE & SOUTHERN.—A contract is said to have been entered into between the city officials of Abilene, Tex., and the Abilene & Southern for building an extension from Abilene north via Anson to Hamlin, about 40 miles. It is expected that work will be begun soon on the section from Anson to Hamlin. (Dec. 10, p. 1166.)

CANADIAN NORTHERN.—A resolution has been filed providing for a government guaranty of the bonds of the Canadian Northern Alberta Railway, which proposes to build a line from Edmonton, Alb., west to the coal fields near the Brazeau river and the headwaters of the MacLeod river. The guaranty is to be for $13,000 a mile for the first 50 miles and $25,000 a mile for an additional hundred miles, and supersedes a previous guaranty of bonds of the Edmonton, Yukon & Pacific.

CANADIAN NORTHERN ALBERTA.—See Canadian Northern.

CHICAGO, BURLINGTON & QUINCY.—The improvements to be carried out during the next 12 months include a line from Kirby, Wyo., southeast to the Powder river, 104 miles, to cost between $5,000,000 and $6,000,000. A line is to be built from Scribner, Mont., northwest to Laurel, 53 miles, to connect with the Northern Pacific, and another line from Greeley, Colo., south to Hudson, as part of an extension from Denver north to Cheyenne, Wyo., by which the Burlington will use its own tracks instead of those of the Union Pacific. An extension is to be built from Herrin, Ill., south to Metropolis, on the Ohio river, 38 miles. Double-tracking work on 75 miles is to be carried out at a cost of $1,700,000, to include the lines from Savanna, Ill., northwest to Galena Junction; Saluda, southwest to Bushnell; East Dubuque, north to Rutledge, Wis.; Grand Crossing, north to Lytle. Track elevation work, as already planned to be carried out in Chicago, will cost $732,000.

CHICAGO, MILWAUKEE & ST. PAUL.—Work has been finished on the branch from Mobridge, S. Dak., southwest to Firesteel, about 50 miles, and this will probably be the terminal of the Timber Lake branch for some time to come. A number of grading outfits are at work on the Fox River line further south, and it is expected to have the line finished to Faith, in the northeast corner of Meade county, ready to receive shipments of cattle this fall.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—This company has applied to the Wisconsin Railroad Commission for authority to build a line into Superior, Wis., and through that city to its ore docks on St. Louis bay, 6.38 miles. The cost of the improvements, including the ore docks and other facilities, will be about $780,000.

CHOCTAW, NEW CASTLE & WESTERN.—According to reports work is to be started at once on a line from the Rock Island near Alderson, Okla., southwest to Savanna, on the Missouri, Kansas & Texas, 11 miles. G. W. Stone, president, Oklahoma City.

EDMONTON, YUKON & PACIFIC.—See Canadian Northern.

EUREKA & PALISADE.—An officer writes that recent high waters washed out several miles of this company's line between Palisade, Nev., and Eureka, 84 miles. Plans for reconstructing the line have not yet been definitely decided upon.

GAINESVILLE, OKLAHOMA & WESTERN.—An officer writes that preliminary survey has been made and work has been started on the permanent location for a line from Gainesville, Tex., southwest via Era, Slidell and Greenwood to Bridgeport, 56 miles. Contracts for the work will be let this month. J. Whaley, president; F. B. Truax, chief engineer, Gainesville. (May 6, p. 1183.)

GRAND TRUNK PACIFIC.—The National Transcontinental Railway Commission reports that actual construction work has been started on the only remaining gap on the Eastern division. This is on the section between Nepijon, Ont., and Abitibi. Work is now under way on the entire line from

Moncton, N. B., west to Superior Junction. It is expected to have the line in operation by the fall of 1912. The completed section from Winnipeg, east to Superior Junction, will be in operation by September of this year.

Houston & Texas Central.—Application has been made by this company to issue bonds, part of the proceeds of which are to be used for improvements, to include putting in heavier rail and new terminal buildings at North Zulch, Tex.

Huntington, Lewiston & Juniata Valley Traction.—An officer writes that contracts have been let to W. D. Cassone and to the Pennsylvania Excavating Co., both of Allentown, Pa., for building a new line in Pennsylvania. Between 300 and 400 men are now at work. The plans call for a line from Mount Union north via Mill Creek to Cold Spring Park, 18 miles, with a line running northeast from Mill Creek to Reedsville, thence south to Lewistown, 30 miles. Some of the work has been finished. R. W. Jacobs, president and general manager; J. Murray Africa, chief engineer, Huntingdon.

Louisville, Lincoln Farm & Mammouth Cave Traction.—Contracts are to be let about June 1, it is said, for building 50 miles of line from Glasgow, Ky., northwest to Mammouth Cave, thence northeast to Hadgenville. J. M. Richardson, president; C. Vandenburgh, general manager, Glasgow.

Mannington & Smithfield.—Incorporated in West Virginia to build from Mannington west to Smithfield, about 16 miles. F. W. Bartlett and S. A. Hendrickson, Mannington, are incorporators.

Minneapolis, St. Paul & Sault Ste. Marie.—This company has given bonds to secure funds for building lines as follows: From Moose Lake, in Carlton county, Minn., northwest to a point near McGregor, Aitkin county, 23 miles, and from Lawler, Aitkin county, westerly to Cuyana, in Crow Wing county, 37 miles.

Moorefield & Virginia.—This company will build a line from Moorefield, in Hardy county, W. Va., south to Peru, 20 miles. W. B. Cornwell, president; W. Trapnell, general manager and chief engineer, Romney.

Oregon Trunk Line.—According to press reports the charter of this company is to be revised to permit the company to build an extension from the proposed terminus at the northern boundary of the Klamath-Indian reservation, Ore., west to the Pacific & Eastern, at Medford, about 60 miles. (May 6, p. 1184.)

Pacific & Eastern.—See Oregon Trunk Line.

Paris & Mount Pleasant.—An officer writes that this company was organized to build from Paris, Tex., southeast to Mount Pleasant, 53 miles. Grading on the first section from Paris to Bogota, 25 miles, has been finished and contract for track laying and bridge work has been let to D. J. Grigsby, Dallas. There will be a 2,100-ft. trestle. R. F. Scott, president, and H. B. Bobberty, chief engineer. N. H. Ragland, secretary and general agent, Paris. (Dec. 17, p. 1214.)

Paul City, Sycamore City, Sabetha & Southwestern.—Surveys are said be made for a 21-mile line to be built in Nebraska. J. H. Miles, president, Falls City, Neb.; G. Campen, chief engineer, Lincoln.

Phillipsburg & Susquehanna Valley.—This company is said to be planning to build an extension from its present terminus at Fernwood, Pa., southwest to Utahville, four miles.

Prairie Farm & Southwestern.—Application has been made to the Wisconsin Railroad Commission for a certificate of convenience and necessity, to build from Prairie Farm, southwest to Emerald, 16 miles. G. E. Scott, president, Prairie Farm. (April 1, p. 918.)

San Pedro, Los Angeles & Salt Lake.—According to press reports the section of this road damaged by floods between Caliente, Nev., and Leith, 29 miles, on which service was temporarily discontinued, will be rebuilt and ready for the operation of through trains about June 15. (March 4, p. 461.)

Wamego & Rock Creek Valley.—This company is said to be asking bids for grading 20 miles from West Moreland, Kan., south to Wamego. The work, which involves the excavation of 367,000 cu. yds. of earth, is to be completed in one year. C. C. Eastman, chief engineer, West Moreland.

Railway Financial News.

Alberta Railway & Irrigation.—This company, controlled by the Canadian Pacific, has called for payment on July 30 its outstanding (at last accounts $928,465) 4 per cent. prior lien debenture stock.

Atlanta, Birmingham & Atlantic.—The committee, George C. Clark, chairman, representing the joint first collateral trust 5 per cent. notes, say that over 95 per cent. of these notes have been deposited under the plan for the payment of interest and part of the principal and the extension of the remainder of the principal.

Baltimore & Ohio.—The $40,000,000 notes sold by this company to Speyer & Co. and Kuhn, Loeb & Co., both of New York, are three-year 4½ per cent. secured notes of June 1, 1910-1913, being part of an authorized issue of $50,000,000, the remaining $10,000,000 being reserved to retire one-year notes due March, 1911. The notes are secured by the deposit of $6,000,000 first preferred stock of the Reading Co., $14,000,000 second preferred stock of the Reading Co., $10,000,000 common stock of the Reading Co. and $28,000,000 Baltimore & Ohio Chicago Terminal first mortgage 4 per cent. bonds. The notes were all resold by the bankers, a large part being placed abroad.

Baltimore & Ohio Chicago Terminal.—The company has made a mortgage securing $50,000,000 4½ per cent. and 4 per cent. bonds of April 1, 1910-1960. Of these bonds $28,000,000 4 per cent. bonds are to be issued to the Baltimore & Ohio at once to pay for the cost to the B. & O. of the terminal property. Of the remainder, $5,000,000 4½ per cent. bonds may be issued for proposed extensions and additions and $15,800,000 bonds are reserved for the enlargement, betterment and extension of the properties covered by the mortgage or for the purchase of equipment therefor.

Boston & Maine.—Thomas W. Lindsley has been elected a director, succeeding William Whiting, resigned.

Brooklyn Rapid Transit.—A quarterly dividend of 1¼ per cent. has been declared, payable July 1, on the $45,000,000 stock. Since April, 1909, 1 per cent. has been paid quarterly. The present dividend declaration increases the annual dividend rate from 4 per cent. to 5 per cent. The Brooklyn Union Elevated, a subsidiary of the B. R. T., has declared an initial dividend of 5 per cent. on its $13,000,000 common stock. The B. R. T. owns $12,530,831 of this common stock.

Brooklyn Union Elevated.—See Brooklyn Rapid Transit.

Canadian Pacific.—Control of the Dominion Atlantic Railway, running from Halifax, N. S., to Yarmouth, 290 miles, has been bought by Canadian Pacific interests.

Central New England.—The New York, New Haven & Hartford interests, it is said, are trying to buy the minority stock of the Central New England, and are offering 23 for the preferred and 12 to 13 for the common. Joseph Moore, Jr., of Philadelphia, asks stockholders who are willing to sell preferred at 50 and common at 25 to communicate with him with a view to opening negotiations with the New Haven. Of the $4,800,000 common and $3,750,000 preferred the New Haven owned on June 30, 1909, $4,432,776 common and $3,420,285 preferred.

Chesapeake & Ohio.—See Hocking Valley.

Chicago & Alton.—Effingham, Lawrence & Co., New York, recently offered at 99⅞ to yield 5.22 per cent. a block of the $2,500,000 collateral trust 5 per cent. convertible notes of March 15, 1910-March 15, 1913. These notes are secured by and convertible into $3,500,000 improvement and equipment mortgage 5 per cent. bonds due 1930, of which $18,000,000 have been authorized.

CHICAGO, CINCINNATI & LOUISVILLE.—The foreclosure sale of this property set for May 17 has been postponed to June 17.

DOMINION ATLANTIC RAILWAY.—See Canadian Pacific.

HOCKING VALLEY.—J. M. Sheets and H. T. Booth were appointed receivers by Judge Kincaid on May 16 in the state common pleas court. Immediately after this appointment the company obtained from the Federal circuit court an order setting aside the order of Judge Kincaid and restraining the receivers from taking possession. The Chesapeake & Ohio has made an official statement of the proceedings that have so far been taken in the purchase by the Chesapeake & Ohio of a controlling interest in the Hocking Valley and a joint interest with the Lake Shore & Michigan Southern in the Kanawha & Michigan. The circular, after describing these steps, says in part:

The plaintiffs claimed that the transactions which we have mentioned were part of a combination between the Lake Shore and the Chesapeake & Ohio to restrain competition between the Toledo & Ohio Central, the Kanawha & Michigan and the Hocking Valley, and, alleging that they would be injured thereby, asking for an injunction and receiver and procured a restraining order prohibiting the Hocking Valley from proceeding with the retirement of its preferred stock and from holding the special stockholders' meeting, and also from recognizing the Chesapeake & Ohio as one of its stockholders. This restraining order was issued ex parte on the filing of a $1,000 bond.

The Hocking Valley promptly moved for a modification of the restraining order so as to permit the completion of retirement of its preferred stock, a large part of which had already been redeemed. After argument the court, of its own motion, appointed J. M. Sheets, ex-attorney-general of the state of Ohio, who several years ago instituted quo warranto proceedings against the Hocking Valley for forfeiture of its charter, and C. O. Hunter, until recently general solicitor of the company, a committee to examine the books of the company and report concerning certain facts alleged in adffidavits submitted by the Hocking Valley and disputed on the hearing. This examination and report were made something more than a week ago and corroborated in substantially every respect the statement that had been made on behalf of the company. Notwithstanding this report the court thereupon ordered an argument on the question whether the plaintiffs had any standing to maintain the suit and whether their motive in bringing the same was material. This question was argued a week ago. Counsel for the plaintiffs also attempted to argue for the appointment of a receiver, but the judge in open court promised counsel for the railway company that he would take no action in that matter without affording them opportunity to be heard concerning it.

Argument was closed on Tuesday of last week. To-day the judge read a long opinion in which he decided practically every question involved in the case, and going outside of the questions that had been argued indicated, as we are informed, that he was prepared to appoint receivers.

Upon its becoming apparent that the court was proceeding to take up that subject forthwith counsel for the railway company filed a petition and bond for removal of the cause to the United States Circuit Court for the Southern district of Ohio upon the ground that it involved a question arising under the laws of the United States. On this fact being reported to the judge, which was done at once, he announced that he would then proceed to appoint receivers, notwithstanding the removal, and named J. M. Sheets and H. J. Booth receivers. Of course the railway company contends that even if the case had not been removed there would have been no ground whatever for the appointment of receivers, and that the cause having been removed the judge was wholly without jurisdiction to make any order in the matter.

We need hardly say that the Chesapeake & Ohio and the Lake Shore are not engaged in any combination in restraint of trade or otherwise. The Chesapeake & Ohio has purchased its interest in the Hocking Valley in absolute good faith for the purpose of developing its business as one of the great competitors for business in that section.

The New York Stock Exchange has listed $1,584,000 additional first consolidated mortgage 4½ per cent. bonds. The proceeds of the sale of these bonds has been used to retire $1,584,000 Ohio & West Virginia first mortgage 7 per cent. bonds which matured May 1, 1910. Owing to the temporary injunction granted to three minority stockholders, the special meeting to vote on the question of authorizing an increase of common stock from $11,000,000 to $26,000,000 has been postponed from May 11 to a later date to be fixed when the suit in regard to the injunction has been decided.

INTERBOROUGH RAPID TRANSIT.—The Guaranty Trust Co., New York, is offering a block of Interborough Rapid Transit 5 per cent. mortgage bonds of 1907-1952 at 102¼, yielding about 4⅞ per cent. on the investment. Of the total $55,000,000 bonds authorized there are $11,655,000 outstanding, $28,030,800 pledged as security for 6 per cent. convertible notes and $15,314,200 issuable for additional property. The Interborough Rapid Transit operates about 25 miles of subway and 37 miles of elevated road in New York city. The company is controlled through stock ownership by the Interborough-Metropolitan Company.

INTERNATIONAL & GREAT NORTHERN.—See an item in General News in regard to the sale of this property.

FREDERICK RAILROAD.—The company has made a mortgage securing $1,500,000 first and refunding 5 per cent. bonds of 1910-1960. The bonds are to be issued to refund outstanding bonds and to provide for extensions and improvements. The road runs from Thurmont, Md., to Frederick, 17 miles, and it is proposed to extend the road from Thurmont to Emmittsburg and thence to Gettysburg.

GRAND TRUNK WESTERN.—The company is to pay on December 1, under the optional provision of the mortgage, 85 per cent. of the principal and all interest earned and accrued on the second income mortgage bonds, of which $1,500,000 were originally issued.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—The New York Stock Exchange has listed $1,207,000 additional first consolidated mortgage 4½ per cent. bonds. Of the proceeds of the sale of these bonds $1,200,000 was used to pay for extensions (see this company under Railway Construction) and $7,000 was exchanged for a like amount of Minneapolis & Pacific first mortgage bonds.

MISSOURI PACIFIC.—The New York Stock Exchange has listed $29,806,000 series A convertible 5 per cent. first and refunding mortgage bonds of 1909-1959, which, having been underwritten, were offered to stockholders at 95 in January, 1910. Of the bonds listed $19,700,000 were issued in exchange for $19,700,000 underlying bonds as follows: $16,715,000 Kansas & Colorado Pacific first refunding bonds, $2,983,000 Kansas City Northwestern first mortgage bonds and $2,000 Kansas City Northwestern series A bonds.

NEW YORK, NEW HAVEN & HARTFORD.—See Central New England.

NORFOLK & WESTERN.—This company has taken over the operation of the Blackstone & Lunenburg and the Pocahontas & Western, two coal roads in Virginia, five and eight miles long respectively.

OREGON & SOUTHEASTERN.—The mortgage trustee has brought suit to foreclose the mortgage under which it is said $250,000 bonds are outstanding. The road runs from Cottage Grove, Ore., to Disston, 20 miles.

ST. LOUIS & SAN FRANCISCO.—It is said that this company has sold in France a block of 4½ per cent. bonds of a new issue.

SEABOARD AIR LINE.—It is understood that the syndicate which underwrote the $18,000,000 adjustment bonds has sold abroad the remaining $6,700,000 bonds previously unsold, and that these bonds are soon to be offered to the public in London.

Supply Trade Section.

The Standard Car Truck Co., Chicago, has moved its general offices from the Old Colony building to 1522 McCormick building.

The Power Specialty Co., New York, has moved its Chicago office from The Rookery to the People's Gas building. R. B. Nutting is manager and R. H. Wyld assistant manager.

A. R. Sutter, formerly with the Consolidated Car Heating Co., New York, in the Chicago sales office, is now in the employ of the Railway Specialty & Supply Co., Monadnock block, Chicago.

The Electric Storage Battery Co., Philadelphia, Pa., announces that it has just opened two new sales offices; one located at 729 Ford building, Detroit, Mich., and the other at 1424 Wazee street, Denver, Colo.

The James Brady Foundry Co., Detroit, Mich., has recently increased its plant and has installed a second 3-motor a.c., 10-ton, 41-ft. span Northern traveling crane made by the Northern Engineering Works, Detroit, Mich.

S. T. Fulton, formerly assistant to B. L. Winchell, president of the St. Louis & San Francisco, has accepted a position in the sales department of the Railway Steel-Spring Co., New York. Mr. Fulton will have offices at Chicago, succeeding J. L. Woods, resigned.

Charles H. Ferry, formerly president of the Chicago Tire & Spring Co., Melrose Park, Ill., died suddenly in Phoenix, Ariz., May 2, at the age of 59. Mr. Ferry was born in Utica, N. Y., and after graduating from Yale he practised law in Chicago and later entered the manufacturing field.

The Globe Stove & Range Co., Kokomo, Ind., has recently increased its plant and installed a Newton cupola of 14 tons hourly capacity and an outfit of ladles and trucks for an industrial railway, all of which equipment was furnished by the Northern Engineering Works, Detroit, Mich.

The Western Elaterite Roofing Co., Denver, Colo., is building an addition to its factory to enable the output to be increased to meet the growing demand for elaterite roofing. The paint department will also be enlarged and an elaterite floor covering will be added to the list of the company's products.

E. S. Marshall, sales agent of the American Car & Foundry Co., St. Louis, Mo., who was formerly general master mechanic of the St. Louis Southwestern, has been placed in charge of the railway lubricating department of the Pierce Fordyce Oil Association, Dallas, Tex., successors in Texas to the Waters Pierce Oil Co.

The General Electric Co., Schenectady, N. Y., has placed a contract with the Aberthaw Construction Co. for a new reinforced concrete building at Lynn, Mass. It is to be fireproof, 51 ft. x 130 ft., and three stories high. The exterior walls are to be reinforced concrete frame, paneled with brick, and very large window area. The floors and roof are to be girderless or mushroom type reinforced concrete.

The United Equipment Co. has been organized, with offices at 50 Church street, New York, and Great Northern building, Chicago, by Lucian C. Brown, Captain L. R. Doty and R. W. Davies, to handle steel cars, underframes and miscellaneous railway supplies. Mr. Brown and Mr. Davies were formerly with the Ralston Steel Car Co., Columbus, Ohio, and Mr. Doty was formerly with the Pittsburgh Coal Co., Pittsburgh, Pa.

The Isthmian Canal Commission will receive bids until May 24 for steel flat cars, steel castings, bronze, muntz metal, rivets, driftbolts, boat spikes, nails, tacks, wire, pipe and fittings, valves, cocks, fusible plugs, drills, drill sleeves and sockets, stocks and dies, taps, wire-rope thimbles, lathe dogs, wrenches, hammers, saw blades, files, hoes, peavies, track levels, vises, warehouse trucks, gasolene furnaces, force cups, oil cans, hinges, door-knobs, window glass, steel tapes, marline, belting, belt dressing, desks, chairs, beds, mattresses, oilcloth, lumber, piles, etc. (Circular 582.)

At the second annual meeting of the Engineers Society of Pennsylvania to be held at Harrisburg June 1-4, the following companies will have exhibits: Publicity Bureau of the Westinghouse Manufacturing Co., Pittsburgh, Pa.; Pennsylvania Steel Co., Steelton, Pa.; J. G. Brill & Co., Philadelphia, Pa.; the Rail Joint Co., New York; the *Engineering News*, New York; Ingersoll-Rand Co., New York; Pressed Steel Car Co., Pittsburgh, Pa.; American Car & Foundry Co., New York; McGraw Publishing Co., New York; Allis-Chalmers Co., Milwaukee, Wis.; General Electric Co., Schenectady, N. Y., and Western Electric Co., New York.

The Isthmian Canal Commission will receive bids for the following supplies to apply on its annual estimate for the period ending June 30, 1911: Cross and switch ties, until May 28 (Circular No. 579); malleable iron castings, repair parts for flat and dump cars, until June 1 (Circular No. 581); miscellaneous supplies such as stovepipe elbows, nails, screws, belt rivets, cotters, padlocks, galvanized buckets, oil cans, oilers, torches, locomotive headlights, lanterns, lantern globes, steam gages, grease cups, window glass, clocks, oars, leather belting, rawhide belt lacing, leather, cotton canvas, railway flags, toilet paper, etc., until June 4 (Circular 583).

The Russian-American Trade and Industry Agency has been incorporated with Bruno Wunderlich & Co., Moscow, Russia, and special attention is to be given American manufacturers. One of the shortcomings of American exporters is the inability to trade direct with the buyer. It is the custom now to be represented in Russia by middlemen located in Germany, England, France or other European countries. The result is that by the time American goods reach the Russian customer they have been subjected to three or four commissions and cost 20 to 35 per cent. more than European manufactured goods. Bruno Wunderlich & Co. claim that their position is unique in this respect and can sell American goods of high class direct to customers in Russia and Siberia. They have been established for over 40 years and furnish good references.

The Ingalls-Shepard Forging Co., McCormick building, Chicago, has been organized to build a plant at Harvey, Ill., for making drop-forgings, light and heavy forgings of general character, and general steam hammer work, especial attention to be paid to railway work. The plant is now nearing completion and will be put in operation by the last of May. The shop will be equipped with drop hammers, board drops up to 2,500 lbs., steam drop hammers from 4,000 to 9,000 lbs., Ajax forging machines from 2 to 5 in. bulldosers, pneumatic cushion hammers, and a complete shop for making dies. F. A. Ingalls is president and treasurer of the new company and Charles C. Shepard is vice-president. Mr. Shepard, who was the founder, and Mr. Ingalls, who later was made president of the Buda Foundry & Manufacturing Co,. Chicago, were the principal owners of that company until January 1, 1904, when the plant was sold to the present owners.

O. M. Stimson & Co., mechanical, consulting and inspecting engineers, has been incorporated to make investigation, inspection, specifications, drawings and reports on industrial plants, machinery and railway equipment, including cars, locomotives and materials. O. M. Stimson, who will have direct charge of the business, has had a varied experience in inspection work. After serving an apprenticeship in the engineering department of the U. S. Navy Yard, he entered the car and manufacturing business in 1886. He has served as foreman, stockkeeper and mechanical engineer of the Lafayette Car Works, Lafayette Ind., estimating engineer for the Pullman Co., manager of the Southern Car & Foundry Co., master

car builder for Swift & Co., and for the past year he has been engaged in work of the character to be taken up by the new company. The company has offices at 1335 Old Colony building, Chicago.

TRADE PUBLICATIONS.

Lifting Magnets.—The Electric Controller & Manufacturing Co., Cleveland, Ohio, has just issued a four-page leaflet, describing its E. C. & M. lifting magnets.

Conveying Machinery.—The Jeffrey Manufacturing Co., Columbus, Ohio, has issued booklet No. 38, containing a large number of illustrations, with descriptive captions, of its conveying machinery.

Electric Fan and Air Purifier.—The American Blower Co., Detroit, Mich., has issued an attractive catalogue, No. 269, describing its Sirrocco electric fan and air purifier, for use in offices and residences.

Vanadium Bronze Bells.—The Vanadium Metals Co., Pittsburgh, Pa., has just issued a circular containing a report of some comparative tests made to demonstrate the superiority of Victor vanadium bronze bells.

Newton Cupola.—The Northern Engineering Works, Detroit, Mich., has just issued catalogue No. 51, describing its Newton cupola. The pamphlet contains a number of illustrations and some valuable data on this subject.

Tilting Crucible Furnace.—The Rockwell Furnace Co., New York, has issued its Bulletin M, containing a number of illustrations and some descriptive matter of its tilting crucible furnace, to be used with oil or gas fuel.

Water Supply.—The Lucas Pump Co., Dayton, Ohio, has issued a leaflet describing the Lucas-Dayton combination outfits for water supply, using open tank or pneumatic pressure, either power-driven or automatically controlled.

Railway Supplies.—The Walter A. Zelnicker Supply Co., St. Louis, Mo., has issued its leaflet No. 103, which contains a list of the railway supplies which it handles. This company has also issued a leaflet describing its double clutch car mover.

Denver & Rio Grande.—"Camping in the Rockies" is the title of a booklet issued by the Denver & Rio Grande describing suitable locations for a vacation camp giving valuable suggestions as to the necessary equipment and numerous estimates of the expense for such an outing.

Flexible Steel Armored Hose.—The Sprague Electric Co., New York, has just issued its catalogue No. 516, describing Sprague flexible steel armored hose for compressed air or steam. A number of illustrations show this hose as used in connection with air and steam drills in both railway shops and construction work.

Horizontal Drilling and Boring Machines.—The Pawling & Harnischfeger Co., Milwaukee, Wis., has issued a folder calling attention to the compauy's horizontal drilling and boring machines. A photograph of an installation of three of the company drills is included and a partial list of companies using these machines is given.

Change of Location.—An attractive announcement of the change of location of the general offices and laboratories of the Dearborn Drug & Chemical Works, Chicago, has just been received. A heavy card, bearing pictures of the McCormick building, in which the new offices are located, the company's factory, and several interior views in the plant, has the printed announcement attached by a gray cord.

Chicago & North Western.—The Chicago & North Western issued special menu cards for the Asahi Round the World party which traveled from San Francisco to Chicago in a special train handled as a second section of the San Francisco Overland Limited of the Chicago, Union Pacific and Northwestern Line. The party consisted of 63 prominent Japanese who are en route to the Japanese-British Exposition to be held in London this summer. The party left Omaha at 11:45 p.m. April 26 and arrived at Chicago at 1:05 p.m. April 27, taking breakfast and lunch on the Chicago & North Western diner. The menu cards were printed in both English and Japanese and were bound in neat green covers tied with green cords.

Union Pacific.—The passenger department of the Union Pacific has issued a 94-page booklet on the Columbia River, giving the history of its discovery and early exploration, and descriptions of the scenery along its course. The historical events are illustrated with drawings and the scenery is shown in numerouus photographs. Colorado and Its Attractions is a folder giving interesting information on Colorado resorts and some of the principal hotels. Two folders on the South Platte Valley and the North Platte Valley describe the agricultural opportunities in those regions. Hotels and resorts on the Union Pacific and its connections are listed alphabetically in a 28-page booklet just published. Three pamphlets give summer tourist excursion fares, homeseekers' fares and convention rates, and three others describe the trip to the Yosemite Valley, to Yellowstone Park over the new line, and to Lake Tahoe, California.

RAILWAY STRUCTURES.

BALTIMORE, MD.—The Western Maryland has bought seven acres of improved property at Lazareta point, including terminals at the foot of York street, and will spend $250,000 putting up two six-story concrete warehouses. At Lazareta point the company now has a water front of 1,100 ft., with over 500 ft. on the shipping channel. The company is said to be negotiating for other property for terminals, and has plans made calling for an expenditure of $3,000,000 for betterments in and around Baltimore.

BEAVER, PA.—The new steel bridge for the Pittsburgh & Lake Erie under construction for the past two years over the Ohio river from Beaver, Pa., to Monaca, has been placed in operation. The steel superstructure cost $1,500,000; the masonry work $250,000, and the approaches about $500,000. The masonry work was carried out by the Dravo Construction Co., Pittsburgh, and the steel work was erected by the McClintic-Marshall Construction Co.

BELLE VERNON, PA.—Bids, it is said, are being asked by the Pittsburgh & Lake Erie for putting up a brick passenger station in Belle Vernon.

BLOOMINGTON, ILL.—According to local press reports, the Chicago & Alton has offered to spend about $1,000,000 on additions to its shops and a new union passenger station, if the city will furnish the necessary land.

CINCINNATI, OHIO.—The Cincinnati Union Depot Terminal Co. has been organized with a capital of $1,000,000 for the purpose of building terminals at a cost of $25,000,000. Plans have been prepared for the buildings and application to the city for a franchise will soon be made.

DENISON, TEX.—The Missouri, Kansas & Texas will begin work in a few days, it is said, on the concrete foundations for five shop buildings, to be built in Denison. (April 1, p. 922.)

HOBART, IND.—The Pennsylvania Lines West will build a $40,000 brick and stone passenger station. Price & McLanahan, architects, Philadelphia, Pa., will receive bids about June 12.

HOLDREGE, NEB.—According to press reports quoting an officer of the Chicago, Burlington & Quincy, that company will build passenger stations at Holdrege and Grand Island, to cost $25,000 each. A station will also be built at Peru, Neb.

KANSAS CITY, MO.—An officer of the Kansas City Southern is quoted as saying that plans are nearing completion for ex-

tensive improvements to be made to the shops in Kansas City. The cost of the work will be about $250,000.

London, Ont.—The Canadian Pacific is said to have bought land in the east end of London, near Quebec street, to be used as a site on which it will build shops, a roundhouse, station and office building. (Jan. 7, p. 71.)

McAdam Junction, N. B.—An officer of the Canadian Pacific writes that two additions are being built to the hotel and station at McAdam Junction. The improvements include a one-story addition on the station end of the building, 32 ft. x 76 ft., to provide additional accommodations for baggage and express, and another on the hotel end of the building, 36 ft. x 76 ft., two stories high, to provide kitchen, dining room and lunch room accommodations. (April 29, p. 1118.)

Medford, Ore.—The Southern Pacific has begun work on a $40,000 passenger station mentioned in an unconfirmed item in the *Railway Age Gazette* of November 26, 1909. The building will be 164 ft. long and 42 ft. wide. built of pressed brick. It is located at Fifth and Front streets, two blocks north of the present depot.

Metropolis, Ill.—Application has been made by the Chicago, Burlington & Quincy to the government for permission to build a bridge over the Ohio river at Metropolis. A hearing has not yet been arranged with the government engineers.

Middletown, Conn.—A contract is said to have been given to the American Bridge Co. by the New York, New Haven & Hartford for building the bridge over the Connecticut river at Middletown. The plans call for a bridge 1,200 ft. long. It is understood that the work will be finished during 1910. (April 22, p. 1065.)

Minneapolis, Minn.—According to press reports the Northern Pacific has plans made for enlarging its terminals in northeast Minneapolis, to be carried out at a cost of about $1,000,000. A building permit is said to have been taken out for the construction of buildings, including shops, a 30-stall roundhouse, coal shed, sand house, machine shop and office building, to cost $125,000.

North Zulch, Tex.—See Houston & Texas Central under Railway Construction.

Omaha, Neb.—The Union Pacific will build new car shops and a planing mill at an approximate cost of $400,000. Current reports that a new freight house would be built are denied.

Portland, Ore.—Plans, it is said, will be made at once by the Hill lines for a new passenger station in Portland, to be built on the site of the present terminals.

St. Stephen, N. B.—An officer of the Canadian Pacific writes that the present wharf accommodation is to be removed and a new wharf with about 600-ft. frontage provided. The present freight shed will be moved to accommodate the proposed rearrangement of tracks, and in addition six new tracks will be added to the freight layout to provide trackage facilities for the freight shed wharves and team track work. A further rearrangement of the entrance to the yard provides for a switch lead independent of the main track. The new wharf will be of pile construction and placed about 150 ft. from the present shore line, with back filling, to provide for the additional trackage. (April 29, p. 1118.)

Toledo, Ohio.—According to press reports the Cincinnati, Hamilton & Dayton will spend $2,175,000 for improvements at Toledo. Of this amount $100,000 is to be used for improving the grain elevators and $75,000 for a new machine shop and roundhouse. (Feb. 18, p. 383.)

Topeka, Kan.—The Atchison, Topeka & Santa Fe will build a $50,000 paint shop in addition to the improvements previously reported in these columns.

Trinidad, Colo.—The Atchison, Topeka & Santa Fe will build a two-story brick freight house.

Woodstock, N. B.—An officer of the Canadian Pacific writes that a new station, 33 ft. x 118 ft., is to be built of pressed brick, with stone trim and overhanging slate roofs. The station is to have shelter platforms. (April 29, p. 1118.)

Late News.

The items in this column were received after the classified departments were closed.

The Baltimore & Ohio is now in the market for 50 consolidation and 30 Mallet locomotives.

The Louisville & Nashville is building 1,200 freight cars of various types in its company shops.

The Baltimore & Ohio is now in the market for from 2,500 to 5,000 box cars and 2,000 coke cars.

The Union Stock Yards, Omaha, Neb., has ordered one six-coupled switcher from the Baldwin Locomotive Works.

The Crystal Tank Line, reported in the *Railway Age Gazette* of April 8 as being in the market for 100 tank cars, has ordered this equipment from the American Car & Foundry Co.

The Pullman Company has filed a bill in the United States circuit court against the Interstate Commerce Commission to enjoin the commission from enforcing the new berth rates recently fixed by the commission.

According to press reports it is expected that work will be finished about June 15 on the extension of the Arizona & California from the bridge over the Colorado river near Parker, Ariz., west to Bengal, Cal. (Sept. 17, p. 520.)

A contract is said to have been given to the A. B. Corey Construction Co., Ogden, Utah, by the Southern Pacific, for work to include repairing damages caused by early spring floods, putting in sidings and double-track extensions through Nevada.

A contract is said to have been given to Thompson & Scott, St. Louis, Mo., to build the extension of the Stephenville North & South Texas, recently reported sold to the St. Louis Southwestern, from Hamilton, Tex., southeast to Gatesville, 32 miles. W. C. McCoy, J. H. Kilbeck and G. J. Gammett are said to have reached an agreement with the contractors to complete the first 18 miles south of Hamilton.

Daniel Willard, president of the Baltimore & Ohio, has been elected president of the American Railway Association, succeeding F. A. Delano. H. U. Mudge was elected vice-president, and I. G. Rawn, president of the Chicago, Indianapolis & Louisville, and C. R. Gray, vice-president of the St. Louis & San Francisco, were elected to the executive committee. The following delegates were appointed to the International Railway Congress to be held at Berne, Switzerland: Daniel Willard, W. F. Allen, Arthur Hale, J. F. Wallace, William Mahl, C. W. Bradley, W. J. Harahan and G. L. Connor.

The annual convention of the Railway Storekeepers' Association was held at St. Louis, Mo., May 16 to 18. D. A. Williams, general storekeeper of the Baltimore & Ohio, presided. The address of welcome was made by the Hon. F. H. Kreisman, mayor of St. Louis; it was responded to by the president and by Eugene Chamberlain, chairman of the Freight Car Repair Pool of the New York Central Lines. Abstracts of the papers presented are published elsewhere in this issue. The association is in a prosperous condition, having 519 members, of whom 210 were in attendance, representing roads in all parts of the United States, Canada and Mexico. The officers for the ensuing year are as follows: President, J. H. Waterman, superintendent of timber preservation, C., B. & Q., Galesburg, Ill.; first vice-president, W. F. Jones, general storekeeper, N. Y. C. & H. R., New York; second vice-president, J. R. Mulroy, general storekeeper, St. L. & S. F., Springfield, Mo.; secretary-treasurer, J. P. Murphy, general storekeeper, L. S. & M. S., Cleveland, Ohio.

FOREIGN RAILWAY NOTES.

A federal loan of $20,000,000 was recently floated in Paris for the construction of the Goyas Railway of Sao Paulo, Brazil.

It is proposed to build a number of short lines in the neighborhood of Soochow, China, to reach Huchow, Kiangyan, Tanyang City and Ku-Yang, which will serve as feeders for the Shanghai-Nanking Railway.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

The Mexico North Western has ordered four consolidation locomotives from the American Locomotive Co.

The Temiskaming & Northern Ontario has ordered four Pacific locomotives from the Kingston Locomotive Works.

The Cuba Company, reported in the *Railway Age Gazette* of May 6 as making inquiries for locomotives, has ordered 10 locomotives from the American Locomotive Co. for July delivery.

The Iowa Central, reported in the *Railway Age Gazette* of April 8 as being in the market for 10 consolidation locomotives, has ordered the equipment from the Baldwin Locomotive Works.

The Minneapolis & St. Louis, reported in the *Railway Age Gazette* of April 8 as being in the market for 10 consolidation and two Mogul switching locomotives, has ordered this equipment from the Baldwin Locomotive Works.

The Paris & Mt. Pleasant Railroad, Paris, Tex., a new line building from Paris, Tex., to Mt. Pleasant, 53 miles, is in the market for motive power for immediate delivery. N. H. Ragland, secretary and general agent, Paris, Tex.

The Chicago & Alton, reported in the *Railway Age Gazette* of April 8 as being in the market for 10 mogul switch, 10 Pacific and 30 Mikado locomotives, has ordered 20 Mikado and 10 Pacifics from the American Locomotive Company, and 10 mogul switchers from the Baldwin Locomotive Works.

The Lehigh Valley, as reported in the *Railway Age Gazette* of April 22, has ordered five simple Atlantic type locomotives from the Baldwin Locomotive Works.

General Dimensions.

Weight on drivers	95,000 lbs.
Total weight	183,000 lbs.
Cylinders	20 in. x 26 in.
Diameter of drivers	77 in.
Type of boiler	Wide firebox
Working steam pressure	200 lbs.
Heating surface, tubes	2,705 sq. ft.
" " firebox	165 "
" " total	2,870 "
Tubes, number	320
" outside diameter	2 in.
" length	16 ft. 3 in.
Firebox, type	Wide
" length	108 in.
" width	102 in.
" material	Steel
Water capacity	6,500 gals.
Coal capacity	13 tons

CAR BUILDING.

The Chicago Great Western is in the market for about 12 passenger cars.

The Temiskaming & Northern Ontario is said to have ordered 12 cinder cars and 50 steel underframe box cars.

The Cuba Eastern is in the market for miscellaneous freight equipment, including 30 and 40-ton box, flat and some cane cars.

The Lehigh Valley is said to be in the market for eight coaches and four combination cars. This item is not confirmed.

The Atchison, Topeka & Santa Fe has ordered 17 baggage and eight mail and baggage cars from the American Car & Foundry Co.

The Harriman Lines have ordered a number of freight cars from the American Car & Foundry Co., but the exact number and details are not available at this time.

The Paris & Mt. Pleasant Railroad, Paris, Tex., a new line building from Paris, Tex., to Mt. Pleasant, 53 miles, is in the market for rolling stock for immediate delivery. N. H. Ragland, secretary and general agent, Paris, Tex.

The Interborough Rapid Transit Co., reported in the *Railway Age Gazette* of April 22 as being in the market for 100 steel subway cars, has ordered 75 closed motor passenger cars from the Pressed Steel Car Co. These cars will have a capacity of 52 passengers and will weigh 73,400 lbs. They will be 38 ft. 8 in. long, 8 ft. ½ in. wide and 8 ft. 1⅛ in. high, inside measurements, and 51 ft. ½ in. long, 8 ft. 10 in. wide and 11 ft. 10½ in. high, over all. The bodies and underframes will be of steel. The special equipment includes:

Axles	Not yet placed
Bolsters, body	Built-up
Bolsters, truck	Not yet placed
Brakes	Westinghouse automatic
Brake-shoes	National Brake-Shoe Co.
Couplers	Not yet placed
Curtain fixtures	National Lock Washer Co.
Curtain material	Pantasote
Doors	Side
Heating system	Consolidated electric
Journal boxes	Symington
Lighting system	Electric
Seats	Heywood Bros. & Wakefield Co.
Ventilators	Swing steel shutters
Wheels	Solid rolled steel
Window fixtures	Polished brass

Harriman Lines.—The passenger cars recently ordered from the Pullman Co. will have the following details: 189 coaches, seating capacity 72, weight 94,000 lbs., over-all measurements, length 67 ft. 8¾ in., width 9 ft. 11⅛ in., height 14 ft.; 85 chair cars, seating capacity 60, weight and measurements same as coaches; 59 baggage, weight 82,500 lbs., inside measurements, length 60 ft. ⅞ in., width 9 ft. 1¼ in., over-all measurements, length 63 ft., width 9 ft. 11⅛ in., height 14 ft.; two combination chair and smoker, same as chair cars; 12 observation cars, seating capacity 40, weight 120,000 lbs., over-all measurements, length 80 ft. 9¾ in., width 10 ft. ⅜ in., height 14 ft. 11½ in.; 25 diners, seating capacity 30, weight 128,000 lbs., over-all measurements, length 80 ft. 2¾ in., width 10 ft. ⅜ in., height 15 ft. 1⅜ in.; 35 postal, weight 108,000 lbs., inside measurements, length 60 ft. ½ in., width 9 ft. ⅞ in., over-all measurements, length 63 ft., width 9 ft. 11⅛ in., height 14 ft.; one combination passenger, baggage and mail car, over-all length 71 ft. 11 in., inside length 34 ft. in passenger compartment, 15 ft. in mail compartment and 20 ft. in baggage compartment; 16 combination baggage and postal cars, weight 118,000 lbs., over-all measurements 71 ft. 11 in., width 9 ft. 11⅛ in., height 14 ft., inside measurements, length in mail compartment 30 ft., length in baggage compartment 39 ft. ⅛ in. The coaches, chair, baggage, postal, chair and smoking and baggage and postal cars are of all-steel construction, and the other cars have steel underframes and wood bodies. Delivery is specified as soon as possible on the wooden equipment, and to begin September, 1910, on the steel cars. The distribution of the equipment to the various lines of the system was given in the *Railway Age Gazette* of May 13.

MACHINERY AND TOOLS.

The Delaware, Lackawanna & Western has issued a list of machine tools for its Scranton, Pa., shops, to cost about $75,000.

The Boston & Maine has ordered an electric traveling crane of 120 tons capacity and 65-ft. span from the Shaw Electric Crane Co., Detroit, Mich.

IRON AND STEEL.

The Baltimore & Ohio has ordered 300 tons of bridge steel from the American Bridge Co.

The Coal & Coke Railroad has ordered 300 tons of bridge steel from the American Bridge Co.

The Chicago, Rock Island & Pacific has ordered 2,600 tons of bridge steel from the American Bridge Co.

The Weatherford, Chicago & Brazos Valley, a new line under construction, is in the market for 60-lb. rails for laying 51 miles of line. J. B. Saylor, chief engineer, Weatherford, Tex.

SIGNALING.

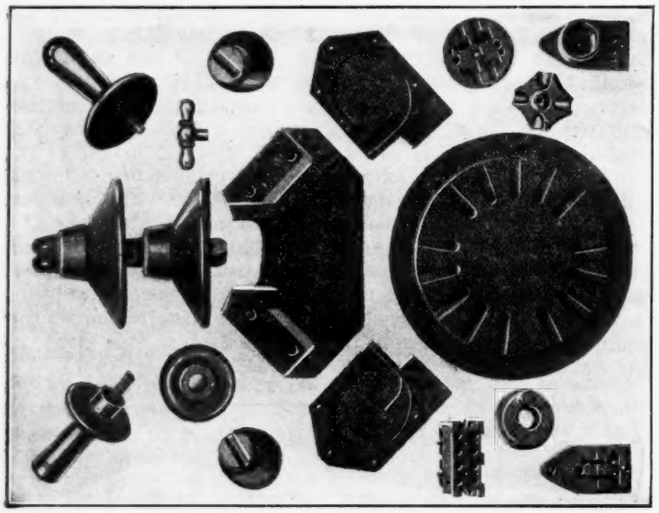
The Chicago, Milwaukee & St. Paul is installing three-position upper-quadrant, automatic semaphore block signals on double track between St. Paul and Minneapolis.

An officer of the Oregon Short Line writes that 300 miles of new automatic block signals, the construction of which has heretofore been announced, are now being put up. They are on the Utah and Idaho divisions of the road. When this work is finished the Idaho division will be completely signaled from Granger, Wyo., to Huntington, Ore., a distance of 540 miles. The signaling of the Utah division will be completed from Sandy, Utah, to Cache Junction, 100 miles. It has been reported that an appropriation has been made for installing signals on the Southern Pacific line across Great Salt Lake. As a matter of fact there is no new construction to be done on this line, as it is already fully signaled; but the officers of the road are considering using the staff system on that portion of the line where the salt water of the lake interferes with the working of the track circuits.

Insulating Material.

A new insulating composition, Hemit, is being introduced by the Hemming Manufacturing Co., New York. Parts of electrical machinery and apparatus in which this material is used are shown in the accompanying illustration.

Hemit is a composition molded under pressure into various shapes and forms. It is said to be very hard, although not brittle, and that it will take a high polish. It is made to be both fire and waterproof, with high tensile strength, and to be immune to contraction, so that expanding metal parts may



Electrical Machinery Parts Using Hemit Insulating Material.

be fixed in place during the molding process. Among some of the more important uses of this composition are the following: Switch handles and bases; bushings; spools; controller parts; field magnet spools; commutator rings; brush holders; solenoid housings; socket rings and gears; arc shields; telephone receivers; sleeves; washers; trolley, telegraph and high tension insulators; snap switch parts; push buttons; contact plugs; telephone mountings, etc.

Hydraulic and Screw Jacks.

The Duff-Bethlehem hydraulic jack is forged from steel, which eliminates leakage at the joints, reduces the weight, and increases the strength. The ram and pump chamber are forged together and the cylinder and base are one piece so there is no joint at the base where most of the leakage in the old jacks occurred. The makers state that the Duff-Bethlehem jack is 30 per cent. to 80 per cent. lighter than the various cast jacks of similar capacity, which is an important consideration in shop practice. Two men can easily carry the forged steel jack while the old type had to be moved on a truck. The strength of forged steel is so great that the jacks can bear a large extra pressure without danger, which permits their use on any kind of a foundation. The valves are improved and are so placed that the jack will operate in any position with its full range of lift. The working parts are few and easily replaced, repairs being made without the use of special tools.

Figs. 1 and 2 show two types of these jacks. The telescope

Fig. 1.

Fig. 2.

Duff-Bethlehem Hydraulic Jacks.

Fig. 3. Duff Ball Bearing Jack.

Hydraulic and Screw Jacks.

jack is made in capacities from 30 tons to 250 tons, with various ranges of lift. Other types include the plain, broad base, wrecking, fixed claw, journal box, and independent pump jacks, which are made in hundreds of sizes. The independent pump type has the jack and pump separated, connection being made with a flexible copper tube. This type is convenient where a limited space is available and is made in capacities of 100 to 500 tons.

The Duff ball bearing screw jack, shown in Fig. 3, is made in a number of types and sizes, including all the sizes used in car shops and roundhouses. All gears are of high carbon steel, are drop forged and have machine cut teeth. The bearings have large balls, separated by a bronze cage to prevent friction between the balls. An additional bearing on the bevel pinion takes the thrust at that point, which reduces the friction and makes the operation of the jack easier.

Fairbanks, Morse & Co., Chicago, carries a full line of Duff-Bethlehem forged steel hydraulic jacks, Duff ball bearing screw jacks in addition to the fell-known Barrett track jacks.

Mazdafor Illumination for Train Sheds and Freight Depots.

The Sterling Electric Manufacturing Co., Warren, Ohio, reports that the question of better lighting for train sheds and freight depots with Sterling Mazdafor clusters has been demonstrated in, and accepted by the management of the Big Four terminal station at Louisville, Ky. The freight sheds are 130 ft. wide by 480 ft. long, with a driveway 45 ft. in width running through the center. On the sides of this driveway are the ingoing and outgoing freight platforms, and through the center of the driveway nine Sterling Mazdafor clusters were installed, which are said to be giving equal distribution of light throughout the building.

This installation is subject to rough usage, including almost continual vibration by the constant handling of cars through and along the sides of the building.

The lamps are hung from iron girders the same as arc lamps, so that they may be raised or lowered to suit the convenience of the trainmen. This installation was put in under the supervision of Walter S. Moore, superintendent of terminals at Louisville, and is said to have given entire satisfaction as to illumination, cost and current consumption.